

# Successful Methods

## *A Magazine of Construction Service*

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### Southward, Ho!

DEVELOPMENTS are occurring in several of the southern states these days at a rate that seems to arouse either scepticism or fear, or both, in the minds of some outside of those states who are unfamiliar with the conditions. The attention of the whole country is focused on the Florida boom. The question in the North is: "How long can it last?"

We shall not attempt to answer that question. Attention may well be called, however, to what is happening in one or two of the other southern states. For example, the industrial growth of that area of the two Carolinas, known as the Piedmont section, seems little known in the country as a whole.

Here we have a cotton textile industry which has grown in the last 20 years at a rate that seems incredible. No one doubts seriously now that this favored section will soon assume the leadership in this industry.

And then comes that new giant of the textile industry, artificial silk, or rayon manufacture. This highly specialized line of manufacturing has found the nearest to ideal conditions in the same general locality.

In this Piedmont Section of the Carolinas the amount of tobacco manufactured easily places it in the lead of the nation in this line. Similarly, furniture making in this locality has in 20 years grown until North Carolina is the second furniture manufacturing state.

These concrete facts are cited merely to illustrate what has been done. Most of these results have come in 20 years, or less. The rate of progress all over the South is faster today than ever before. The reasons are not hard to find.

A vast section, ravished and impoverished by the Civil War, made little material advance until after 1900. Beginning about that time the growth of industry began to accelerate. The development of hydro-electric power on a vast scale was one of the main impulses to the movement. Good labor at reasonable rates has been a big factor. Vast undeveloped sources of raw materials have contributed much. Favorable climatic conditions have attracted many leaders from the more vigorous northern sections, but the Southerner has led in the main. And nearness to the markets of the bulk of the population of the country has been the final link.

Lately good roads have opened up vast new possibilities. And so we find many sections of the South today going ahead faster than any large part of the

country has ever progressed. Founded, in the main, on sound fundamentals, this focusing of finance and industry on the South offers opportunities for the engineer, the contractor and the material men which many of them already have sensed and grasped.

### The Portable Conveyor

COMPARATIVELY few construction men know how effective the portable belt conveyor is for handling various materials. This piece of equipment has been on the market less than 10 years. But in that time it has become very favorably known by those who have had experience with it. And yet its use is confined largely to more or less fixed jobs of material handling.

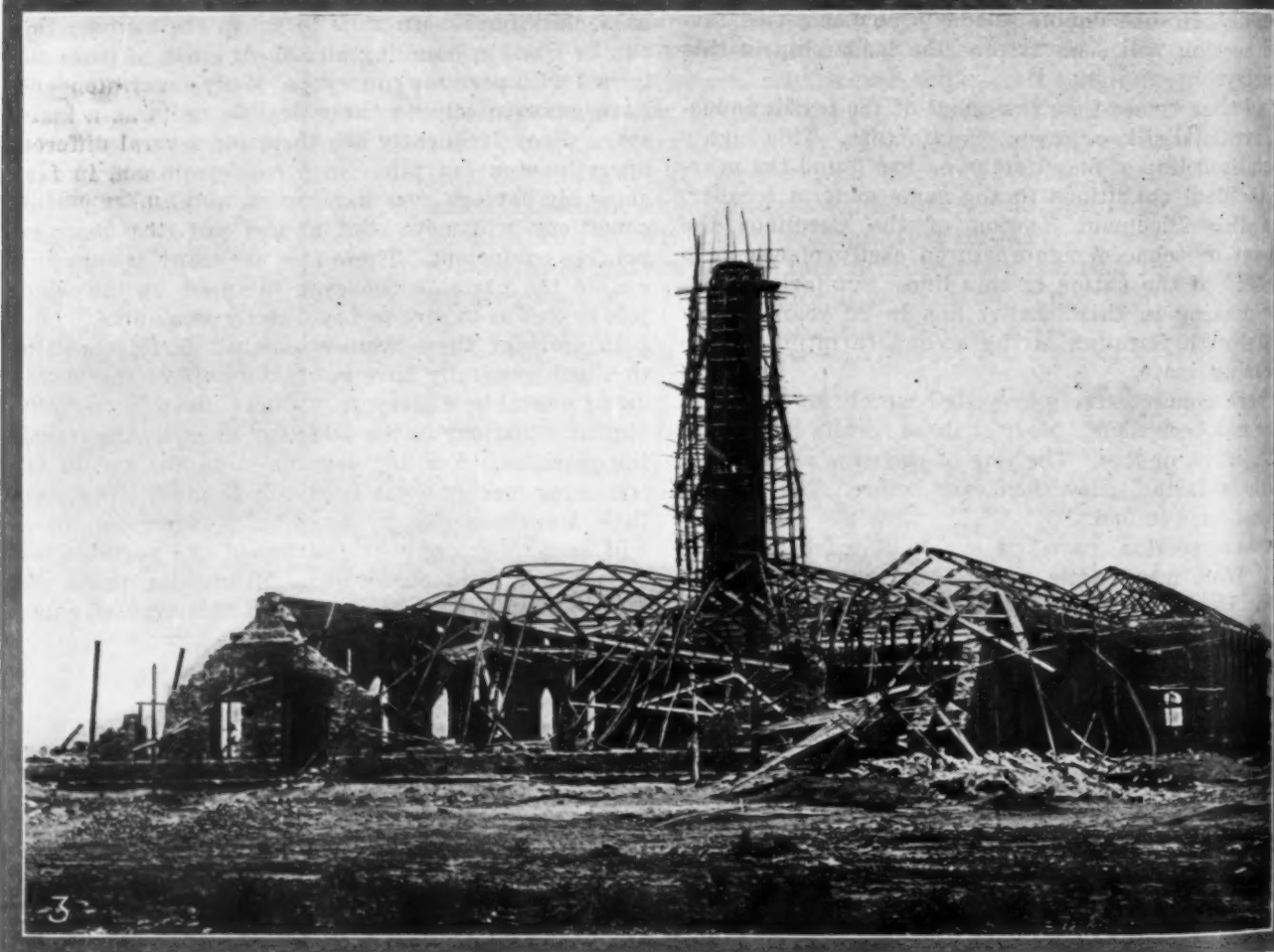
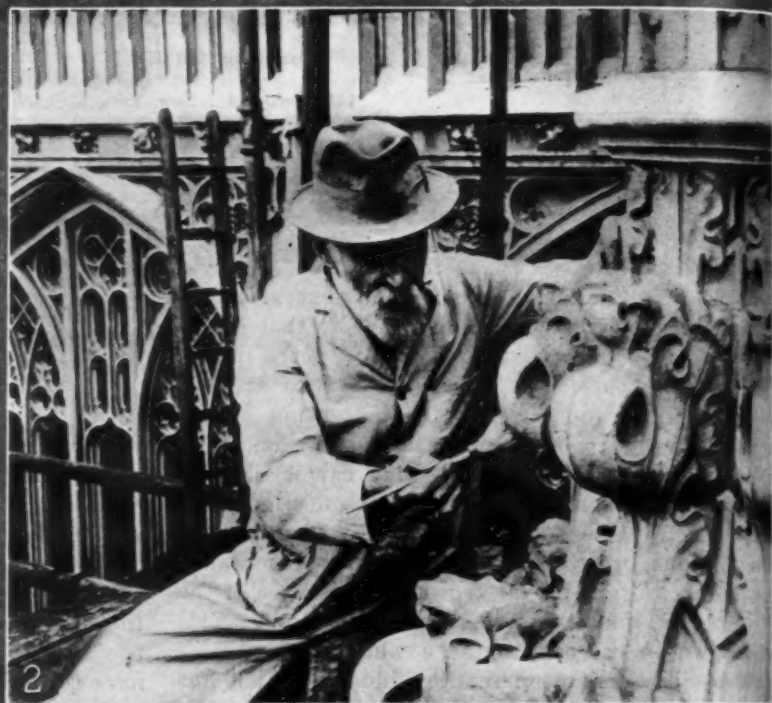
There is no evident reason why construction men as a class have been slow to grasp the savings that can be made in handling almost all kinds of loose materials with portable conveyors. Many superintendents have come to rely on these flexible units as a mainstay. They frequently use them for several different operations on one job. Such conveyors can, in fact, show big savings over hand work, and, under certain conditions, will move stuff at less cost than more expensive equipment. There also are many set-ups that enable the portable conveyor to speed up the whole job, as well as to save money directly as a unit.

In spite of these well-established facts, construction men generally have not taken hold of the idea of using portable conveyors. There have been other similar situations in the field; for example, the trenching machine. For 10 years or more the use of the trenching machine was relatively limited. Now, very little trench is dug by hand. The same conditions will eventually apply to the use of the portable belt conveyor in field operations. Meanwhile, those who have become wise to the value of this type of equipment are making the most of it.

### Holiday Greetings

TO all of its readers, both at home and abroad, SUCCESSFUL METHODS extends the season's greetings. It may be of interest to those who read this magazine to know that 41,000 copies are published each month, and that it is sent free of charge to that number of men engaged in the great construction industry, not only in the United States, but in foreign countries as well. SUCCESSFUL METHODS wishes each and every one of its readers a Merry Christmas and a Happy New Year.

## With the Builders

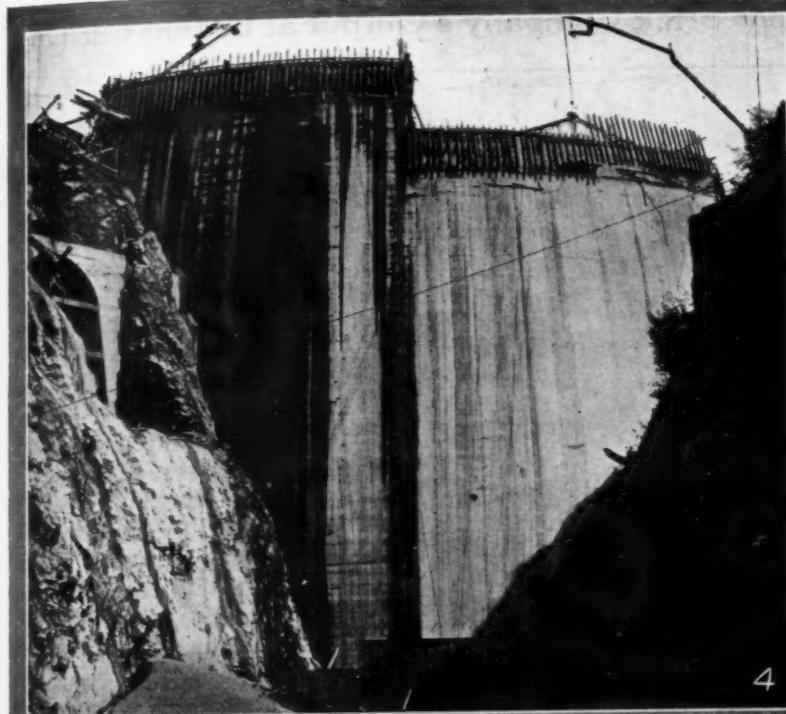


1. An unusual bit of construction at Hollywood, California. © P & A
2. Age does not deter this British workman from climbing
3. A construction job that was caught by a cyclone in India.

The tower is the shaft of an elevator which carries pedestrians to the top of a high scaffold on Westminster Abbey. © P & A



## At Home and Abroad



4. The Cushman Dam near Seattle, Washington. © International  
 5. Governor-Elect A. Harry Moore of New Jersey shows that he can manoeuvre a steam shovel. © P & A  
 6. The new concert house in Stockholm, Sweden. A good example of modern construction. © K & H

## STEAM SHOVEL AND OPERATOR WORK TOGETHER FOR EIGHTEEN YEARS WITHOUT A SINGLE QUARREL

Tennessee Veterans Keep Liberty Brick Company's Output at 60,000 Per Day

**T**OO close an association over a long period has destroyed many a friendship. Therefore, when two persons work together day in and day out for 18 years and are still the best of friends, it means that each of them is well equipped with good qualities.

An example of this sort of friendship is shown in the photographs on this page. The man in the upper picture is John S. Bowers of Memphis, Tenn., and below is the Thew steam shovel which he has operated continuously for the last 18 years. This shovel was sold to the Liberty Brick Company of Nashville in 1900 and already had been operated in the company's clay

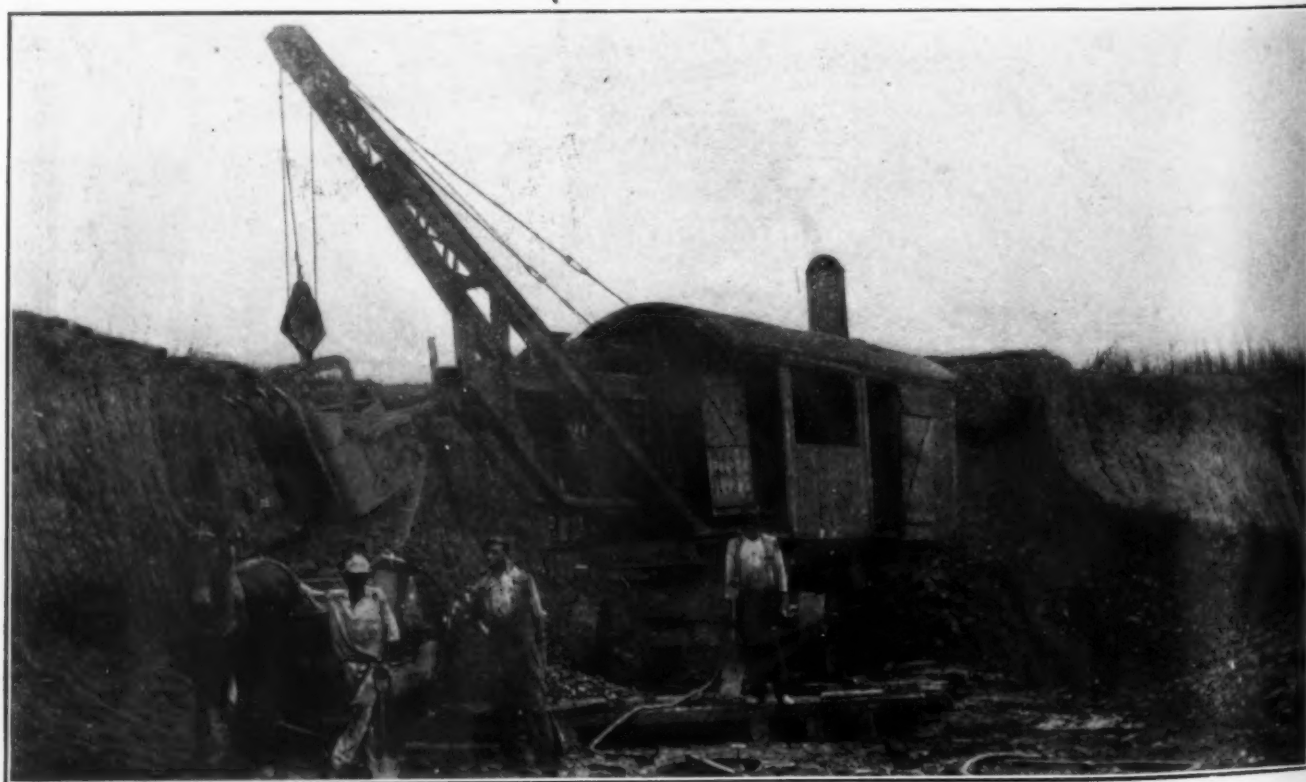


JOHN S. BOWERS

pits for seven years when Mr. Bowers made its acquaintance back in 1907. Since that time Mr. Bowers and his Thew have been inseparable. Whether or not this association between shovel and operator is a world's record is a matter of doubt, owing to the absence of exact statistics, but if any reader of **SUCCESSFUL METHODS** knows of any operator who has been running the same shovel for so long a time, this magazine will be glad to hear about it.

The material in which the shovel has been digging for the last quarter century consists of hard shale.

The company's output at present is 60,000 brick daily.



STILL GOING STRONG AFTER TWENTY-FIVE YEARS OF SERVICE

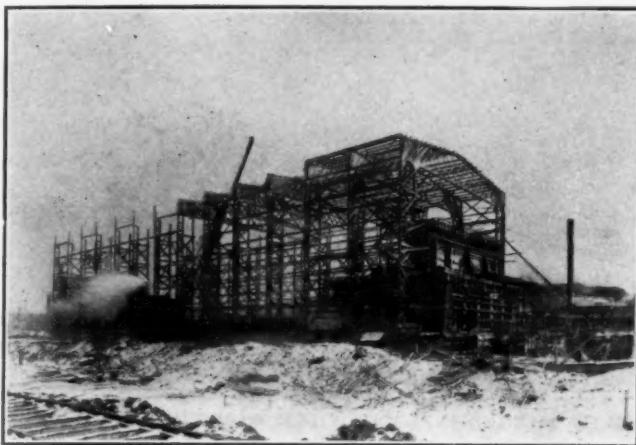


## A WELL ORGANIZED JOB

Construction of Coke Plant in Upper Hudson Valley Carried on Continuously Through Winter

ON the banks of the Hudson River at Troy, N. Y., the Foundation Company has just completed the first units of the plant of the Hudson Valley Coke and Products Corporation. This plant occupies a site containing about forty acres stretched out along the river front, about thirty acres of which are devoted to the coke plant and the remaining ten acres to the blast furnaces.

The final plans call for the erection of two blast furnaces, one of which is now completed, and for the construction of three oven batteries, each unit consisting of fifty-five ovens. The first



ERECTING STEEL ON OVEN BATTERY

of these is about finished. In addition, a by-product plant, coal and coke handling machinery, a phenol extraction plant, a water gas plant and a benzol plant also have been put up. The ultimate capacity of the present plant will be 1000 tons of coke daily.

Construction was begun in August, 1924, and was carried on continuously through the winter of 1924-1925, the present program of work being finished about a little

more than a month ago. Other units will be built later.

The amount of work that was done is clearly shown in the two long photographs on pages 6 and 7. The



THE OVENS DURING CONSTRUCTION. THE VARIATIONS IN THE BRICK USED MADE IT NECESSARY TO ORGANIZE THIS PART OF THE WORK WITH UNUSUAL CARE



THE SITE OF THE COKE PLANT WHEN WORK BEGAN IN AUGUST 1924

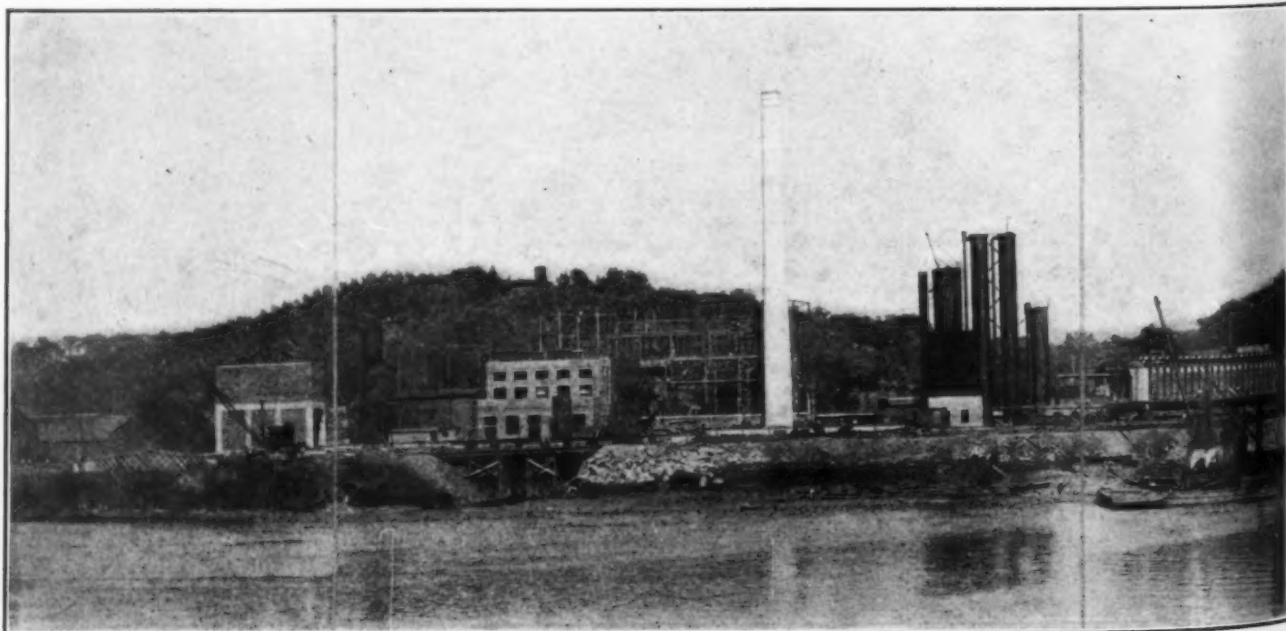
upper photograph shows the site as it was when the Foundation Company took over the work and the lower picture shows the plant as it now looks.

The largest unit on the site is the oven battery consisting of fifty-five 13-ton ovens. This structure rests on a mat which consists of 16-in. steel pipes driven to a depth of about 42 ft. by steel hammers and then filled with concrete. The steel superstructure of the oven battery was erected on this mat and then the most difficult part of the work began. About 9000 tons of refractory brick was required to build the ovens. Inasmuch as the construction of a coke oven requires the use of different shaped brick for almost every foot of height, a job of this sort has to be extremely well organized, and also has to be carried out almost entirely by hand labor. A schedule describing the different sizes of brick required by the plans is first made out and sent to the manufacturers of the brick.

The brick is then delivered in the proper order and upon arrival at the site of the work is unloaded and distributed again in the proper order throughout the oven battery.

This work was under the direction of a man who has been building coke ovens for more than twenty years. About sixty-five crews of bricklayers were employed and the construction of the ovens proceeded at a uniform rate throughout the entire building. The photograph at the bottom of page 5 gives a good idea of the method used and of the uniformity with which the work was carried on. The brick required for the wall of one oven was piled on the wall of the adjoining oven, and each oven in the battery reached the same stage of completion at approximately the same time. The schedule was adhered to throughout the job.

The oven battery is 200 ft. in length, 42½ ft. in width and 30 ft. high so that it was no easy job to handle



AS THE COKE PLANT LOOKS AT THE PRESENT TIME





THIS PHOTOGRAPH SHOWS THE HUDSON IN THE BACKGROUND

the work in so smooth a manner. The erection of the ovens required about eight weeks.

Three of the other photographs show the erection of a steel truss which was part of the coke handling equipment. This truss was raised into place with a derrick at one end and two cranes at the other. The photographs show the truss on its way up to its final position. Several other trusses for conveyors were erected in the same manner.

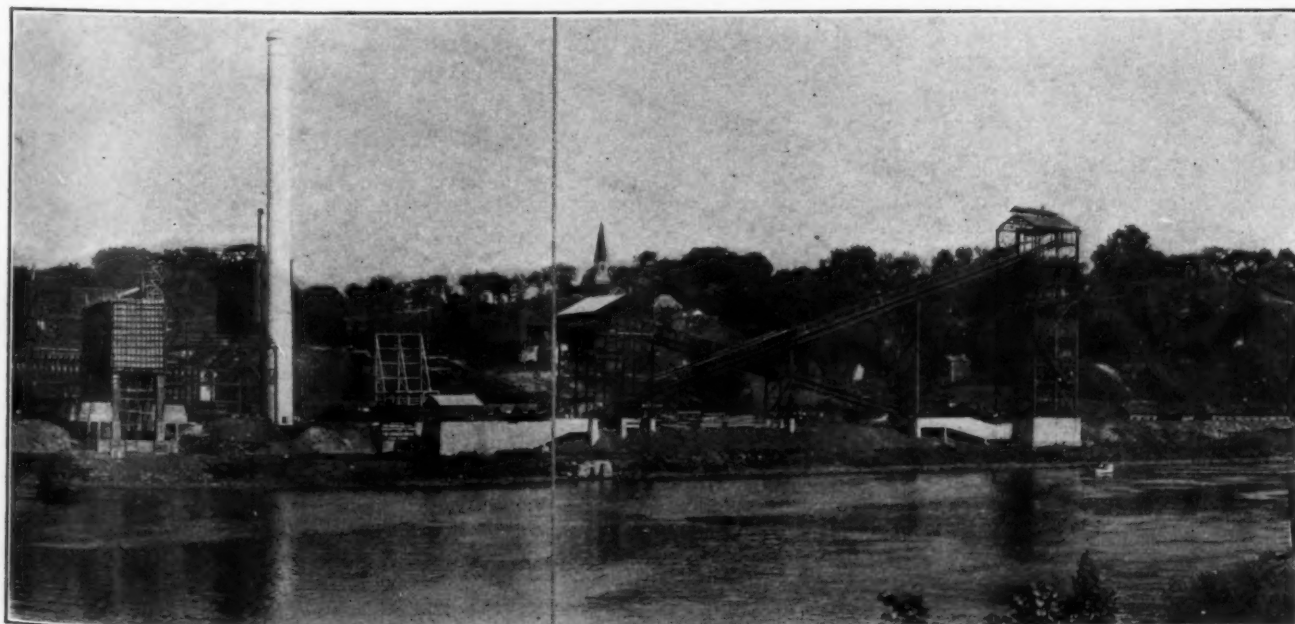
The entire job included excavation of about 22,000 yd., the placing of about 17,600 yd. of concrete, the erection of 2000 tons of structural steel and the use of 1,620,000 common brick. C. C. Watson is the superintendent in charge of the job for the Foundation Company.

A construction job of this sort which involves the putting up of a great variety of buildings of different types necessarily requires an efficient organization and

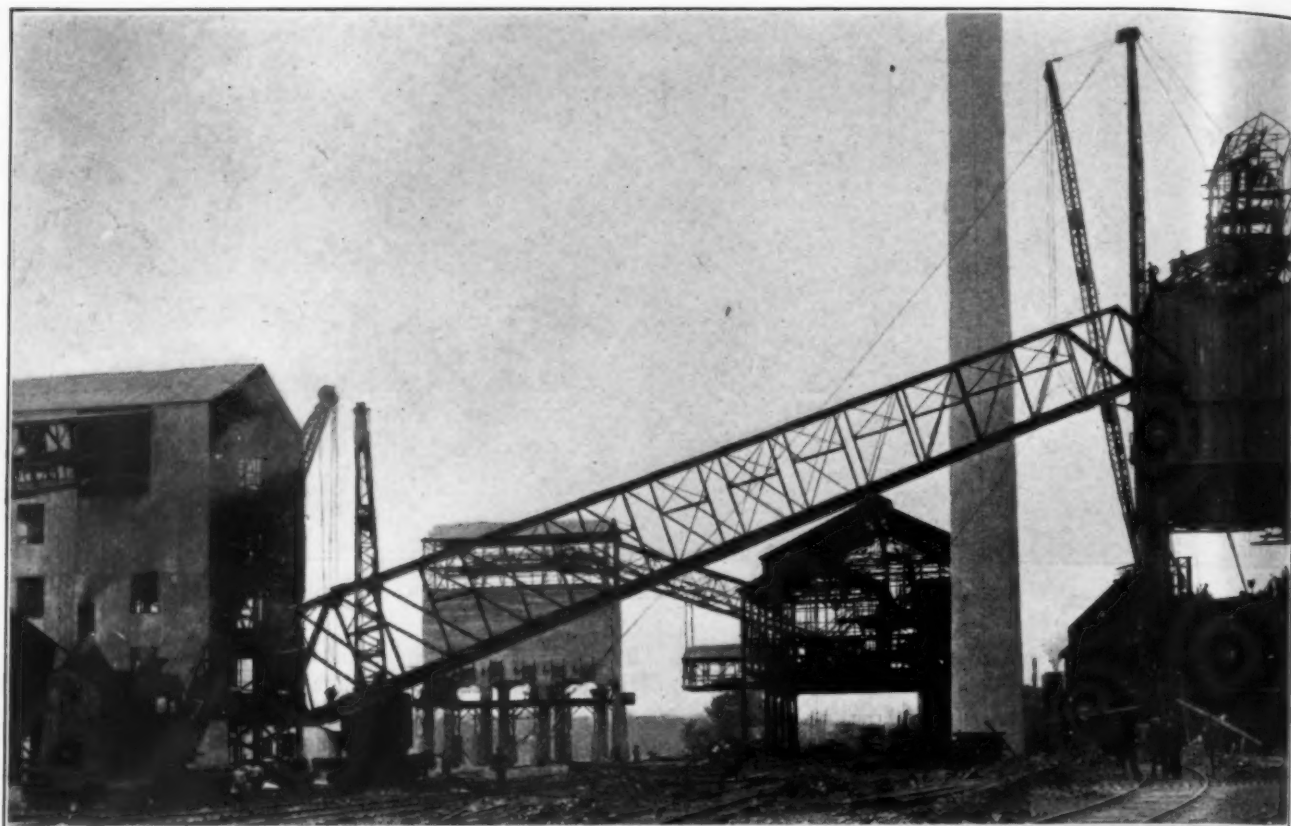
at the same time an organization that is flexible enough to accommodate itself to the different classes of work that it is called upon to do. As may be seen from the long photograph showing the plant as it now stands, the work done presented a number of varying problems, all of which were taken care of by the Foundation Company forces.

An unusual amount of hand labor was employed in building the coke ovens for reasons heretofore explained. In the other portions of the job, machines were used to replace hand labor wherever possible.

The work that was accomplished during the winter months shows that in the northern part of the United States winter construction is both possible and profitable if due precautions are taken. Some kinds of work necessarily have to be suspended during extremely cold weather, but if the job is properly planned to allow for such suspensions, the main program can be carried on



THE RIVER IS IN THE FOREGROUND OF THIS PHOTOGRAPH



RAISING A STEEL TRUSS TO ITS POSITION AS PART OF THE CONVEYOR SYSTEM

without appreciable delay. Every year finds an increase in the jobs that are carried straight through to completion, as was the case in the building of the

Hudson Valley Coke & Products Corporation plant. The winter will probably see more construction work under way than has been the case previously.

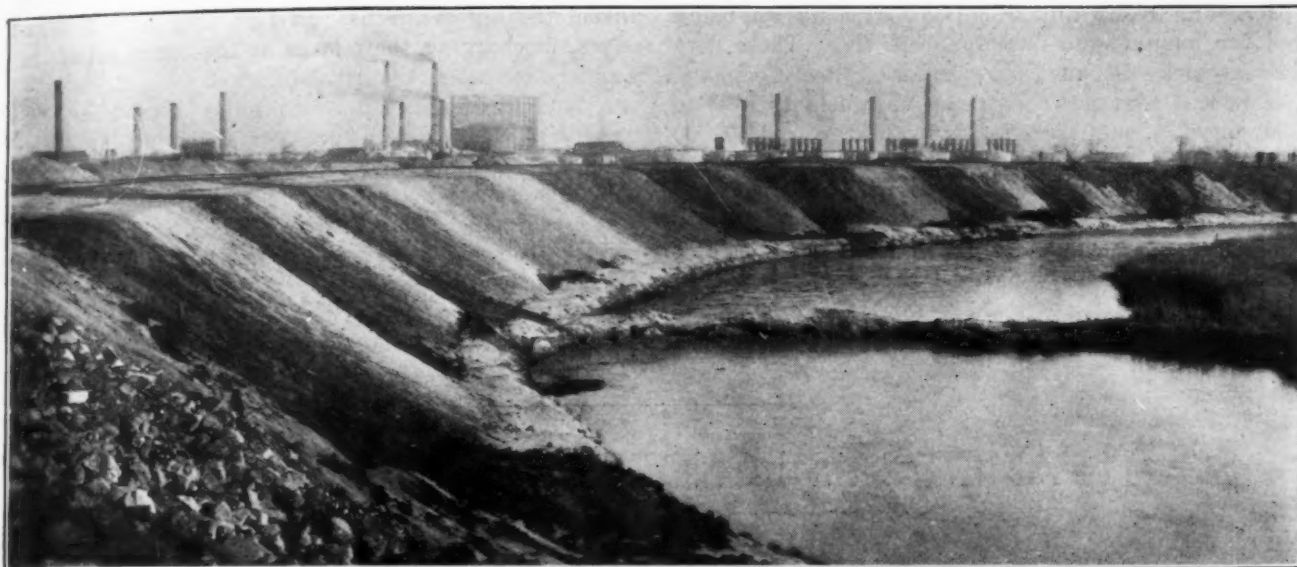


THE TRUSS IN FINAL POSITION AND READY TO BE SECURED



## TURNING WASTE INTO PROFIT

Steel Company Hauls Slag Six Miles in Big Air Dump Cars and Reclaims  
Hitherto Useless Area



**M**ODERN industry is not content to dispose of waste economically. It must be disposed of profitably. This seeming anomaly is accomplished by utilizing the waste product for filling wasteland to make it available for industry, thereby converting two waste factors into a splendid asset.

The methods of the Inland Steel Company, situated on the southern shore of Lake Michigan, are typical of the means now employed by large concerns for the disposal of waste.

A large steel company accumulates an enormous amount of slag and flue dust in the course of a year. The Inland Steel Company, which is the largest of the independent companies in the West, has been making

land with this waste product by filling Lake Michigan to the limit permitted by laws of the State of Indiana. At the present time the company has shifted its dumping operations to the former site of Lake George, 2½ mi. west of the plant. Lake George formerly was a large flooded area on which water stood at an average depth of 3½ ft. During the past few years this so-called lake has been drained but the old lake bed is still too low for industrial purposes, being only a few inches above the level of Lake Michigan. The photograph at the top of this page shows how the old lake is gradually being converted into useful and dry land.

The Jones & Laughlin Steel Company owns a large area of this former bed of Lake George, and this prop-



DUMPING A LOAD OF SLAG ON THE EDGE OF THE FILL

erty is now being filled by the Inland Steel Company with slag from its Indiana Harbor plant. The fill is of irregular shape, more or less resembling a wedge three-quarters of a mile in length and 2000 ft. in width at its wider end.

Forty-five Western air dump cars, sixteen of 50-yd. capacity and twenty-nine of 35½-yd. capacity, are being used for hauling and dumping this slag. These cars were especially designed for the Inland Steel Company. A train load averages thirty cars and includes 1300 to 1400 cu. yd. of material.

Into these cars the blast furnace granulated cinder, saturated with water, is loaded with a 5-yd. clamshell bucket. The open-hearth slag is first run into ladle cars and dumped out on the ground to cool. It is then broken up into readily handled chunks by a gantry crane, which picks up a steel ball three feet in diameter with a magnet and drops it upon the slag from a

height. When the slag is broken the crane loads it into the cars, using a 3-yd. bucket.

The loaded cars are set outside the plant by the plant locomotives and are then picked up by the Indiana Harbor Belt locomotives, which pull them to the dump. At the dump it is the work of but a few moments to unload the big Westerns. In fact, they unload themselves, discharging their loads at the command of the man who operates the air valves.

A haul of approximately six miles is necessary between the Inland Steel plant and the dump. As a preliminary operation, on account of the lowness of the land, it was necessary to throw up a dragline fill before a dumping track could be laid. Sand from the old lake bed was used in making this initial fill. The dragline dug two parallel ditches, throwing up a 20-ft. fill between which was firm enough to support the weight of the loaded dump cars.

## SOUTH AMERICA'S LONGEST SUSPENSION BRIDGE COMPLETED AND IN USE

New Structure Connects Island Capital and Mainland



**T**HE longest-span bridge in South America has just been completed, connecting the mainland of Brazil with Florianopolis, the island capital of the State of Santa Catharina. The 1114-ft. span carries highway, railway and water supply across the waters of the Atlantic Ocean.

The work on the substructure of this bridge was described in the June, 1924, issue of *SUCCESSFUL METHODS*. At the time the article was written none of the steel work had been erected, but was all fabricated and awaiting shipment to South America. The contractors who handled much of the work on the substructure were Byington & Sundstrom of Sao Paulo, Brazil. The bridge cost about \$2,000,000.

Those readers of *SUCCESSFUL METHODS* who may desire to look up Florianopolis in their atlases need not be discouraged if they do not find it, as the name is

comparatively new, and on many older maps it appears as Desterro. It may be found by following the coast line about 600 miles south of Rio de Janeiro.

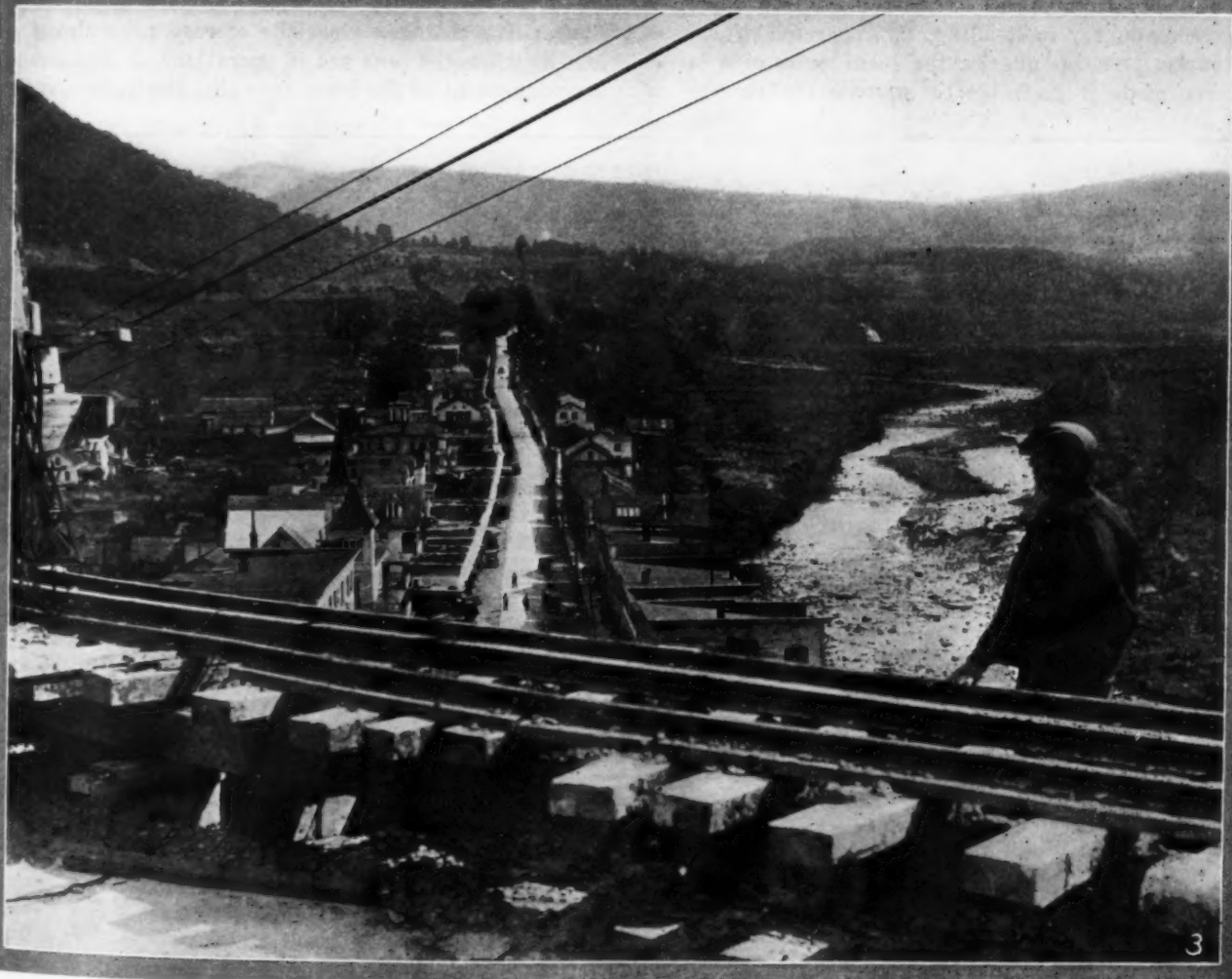
This bridge also holds the record as the longest suspension span in the world employing eyebars instead of wire cables. It is the first bridge utilizing the new high-tension heat-treated steel, which is much stronger than ordinary structural steel.

It is also the first suspension bridge to be built of the new type in which the chain or cable is utilized to replace the middle half of the top chord of the stiffening truss. The photograph clearly shows effect obtained by this method of construction.

The bridge was designed by Robinson & Steinman, consulting engineers, of New York City. It was fabricated and erected by the United States Steel Products Company.



## Gilboa Dam Nears Completion



Three views of the Gilboa Dam, which will soon be completed, and which will increase New York City's water supply. The Village of Gilboa, shown in the lower photograph, will be razed. The photograph on the cover of this issue of Successful Methods shows the dam as it now appears looming up at the end of the village street. © P & A

## BUCKET LOADERS PROVE THEIR WORTH IN QUARRIES AND GRAVEL PITS

Portable Equipment Adds to Ease of Handling Product

**P**ORTABLE equipment is a necessity at every quarry or gravel plant. The nature of the work is such that the machines used to excavate and handle the materials have to move along as old sections of the quarry are exhausted and new sections are opened up. Of course, a number of permanent buildings and storage bins have to be built but in addition, it is almost always economical to make use of mobile equipment wherever possible.

The photographs which accompany this article were taken in quarries and gravel pits in the eastern part of the United States and show how Barber-Greene bucket loaders are being used to excellent advantage in this important phase of the construction industry.

The photograph at the bottom of this page was taken at a stone quarry in Reading, Pa., operated by Fehr & O'Rourke. At this quarry, the installation of a larger crusher made it desirable to increase the storage ca-

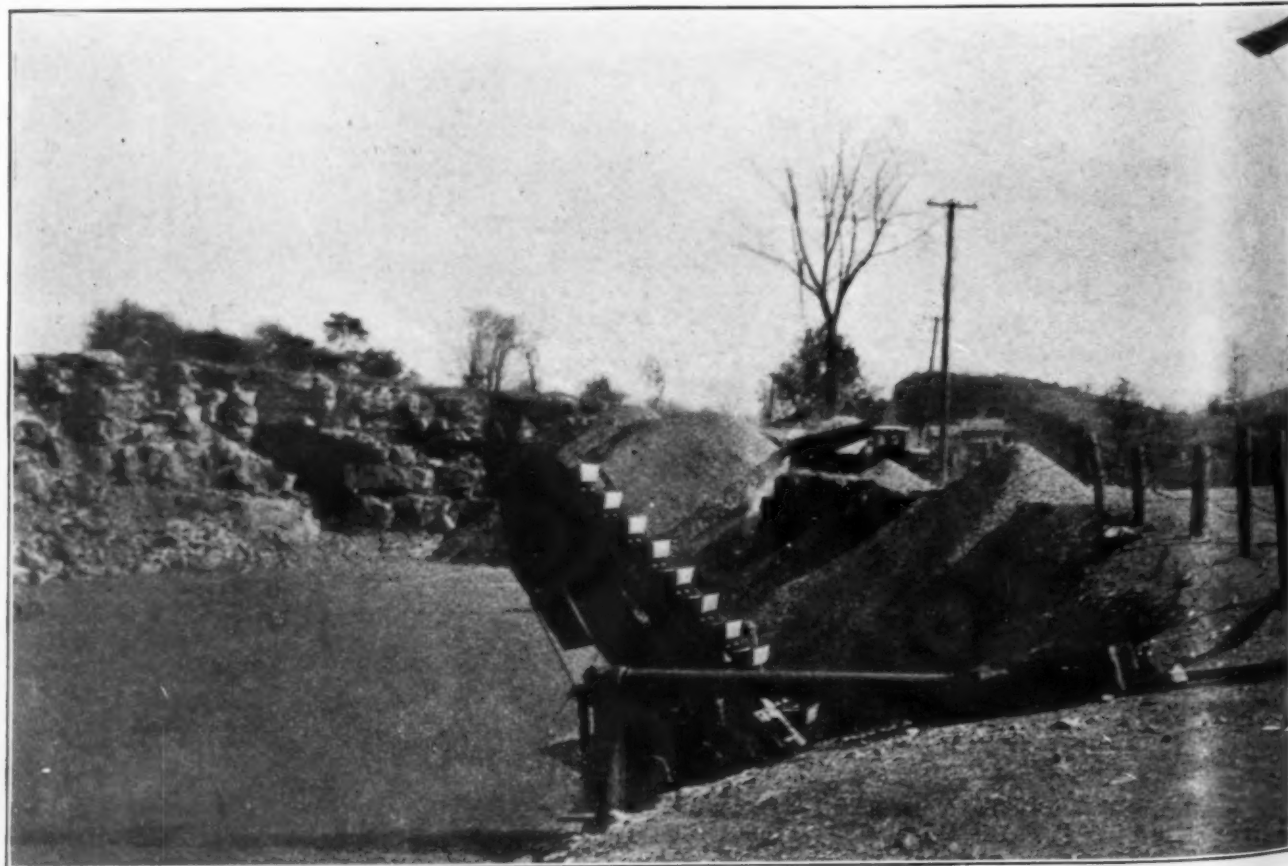


LOADING DIRECT FROM BANK

capacity without building additional permanent bins. This was accomplished by dumping the stone in storage piles along the edge of the quarry, the different sizes being dumped in separate piles. This arrangement gives greater loading speed in the morning, particularly when the trucks are starting out as the trucks can obtain their loads either from the bins or from the Barber-Greene loader which operates along the base of the storage

piles, and as it is mounted on crawler traction, can move quickly from one pile to another depending upon the size of stone needed by any particular truck.

The loader is also used to handle the output whenever the crusher is shut down for any reason and the supply in the bins is depleted. In such instances the Barber-Greene loads from the storage piles almost as fast as when the bins are in operation. J. Hildebrand, superintendent of the plant says that the loader handles



HANDLING STONE FROM STORAGE PILES ALONG EDGE OF QUARRY



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December, 1925

Successful  
Methods

13

7 tons of  $\frac{3}{4}$ -in. stone in 3 minutes with one man operating it.

The upper photograph on this page shows a Barber-Greene loader owned by the Mt. Ephraim Sand Company at Mt. Ephraim, N. J. This machine not only handles bank run gravel, but also is used to load sand from the storage pile at the washing plant. It takes care of this double duty by traveling back and forth between the bank and the washing plant under its own power. At the bottom of page 13, another Barber-Greene which also is operated at Mt. Ephraim. It is owned by J. F. Kelly and is used for loading bank run gravel. A close inspection of the photograph will show that it is working in the place where the footing is so soft that branches of trees have been laid down to form a mat to support the wheels of the truck which is being loaded.



WORKING IN CLOSE QUARTERS

plant of the National Brick Co. of Terra Cotta, D. C. This machine loads sand into wheelbarrows which are then wheeled directly to the crusher about 100 ft. distant.

On all of these jobs the use of the loaders decreased the amount of hand labor necessary, which, of course, showed up on the profit side of the ledger. As pointed out in the beginning of this article, the mobility of the crawler-mounted loader makes it a great asset on work of this character. It can move from one end to the other of the big quarry or gravel pit in a few minutes, and in the case of small deposits of material can get from one to the other in a comparatively short time. Machines such as these are helping to make easier the production of the materials that are so necessary to the construction industry. They do their full share to speed

The upper photograph on page 13 was taken at the up the nation's great construction program.



ON THE JOB WHERE THE FOOTING IS TREACHEROUS

## BUILDING A BREAKWATER FOR NEW PORT

Corpus Christi, Texas, Is Improving Its Harbor

ONE of the notable construction jobs now under way in the southern part of the United States is the building of a port at Corpus Christi, Texas, by the Neuces County Navigation District and the City of Corpus Christi. The Federal Government has agreed to construct and maintain a deep water channel into Corpus Christi Bay, provided the navigation district and the city construct an adequate port. This work is going on under the direction of Government engineers.

The Union Dredging Company is at work on the turn basin which will occupy an area one-half mile long by one-fourth mile wide. This will be dredged a depth of 30 feet. The Sumner Sollitt Company of

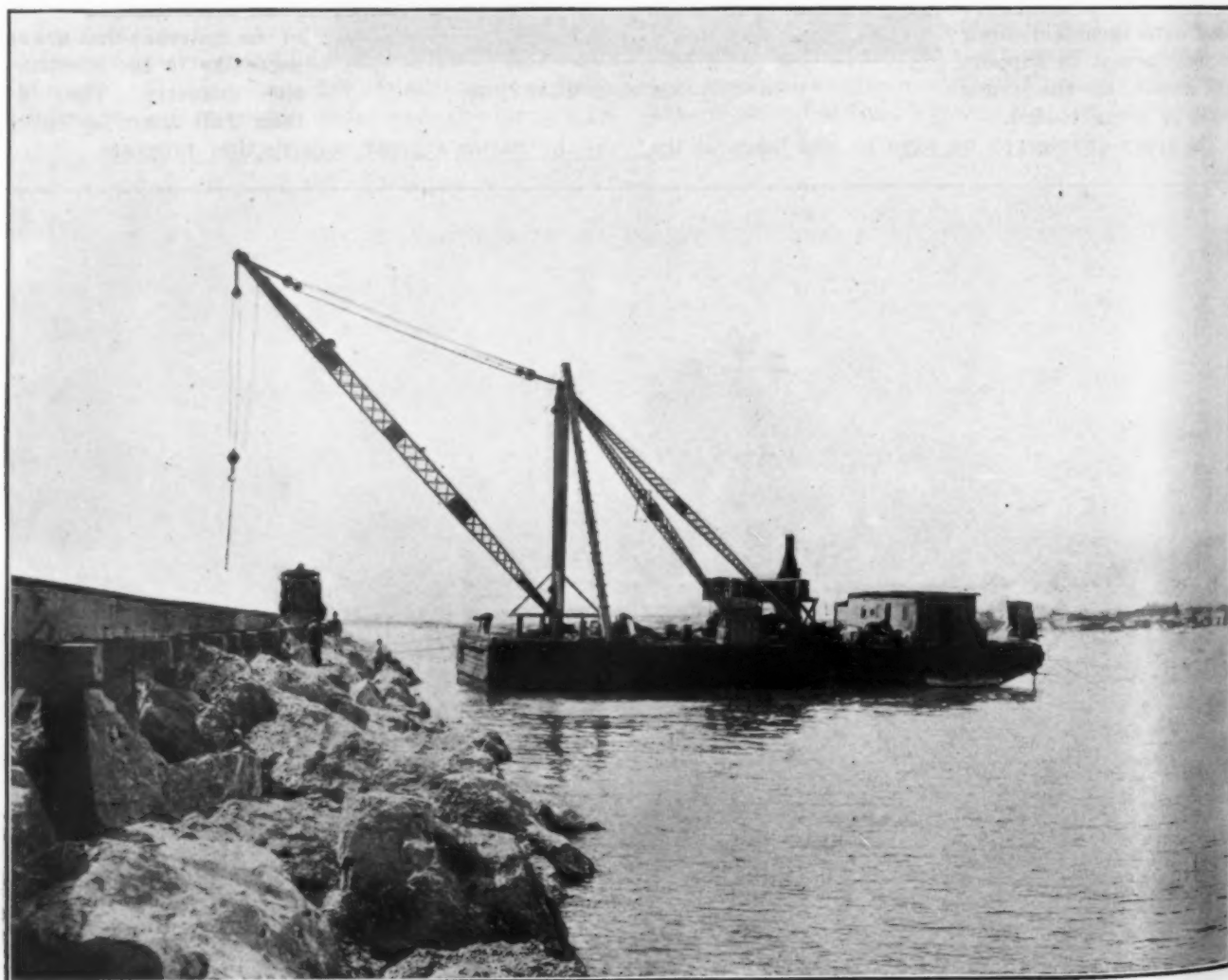


QUARRY WHERE STONE FOR BREAKWATER IS OBTAINED

photographs which illustrate this article show that portion of the work which Mr. DePuy is doing and which will cost about \$600,000.

The rock for the breakwater is obtained from a limestone quarry about 15 mi. north of San Antonio and about 165 mi. from Corpus Christi. This quarry is equipped with four timber guy derricks which

San Antonio is building the wharf and transfer shed, a job which will cost about \$850,000. The Wisconsin Bridge & Iron Company is constructing a bascule drawbridge costing more than \$500,000 at the entrance to the turn basin, and J. DePuy of San Antonio has the contract for the breakwater which will protect the entrance to the turn basin. The

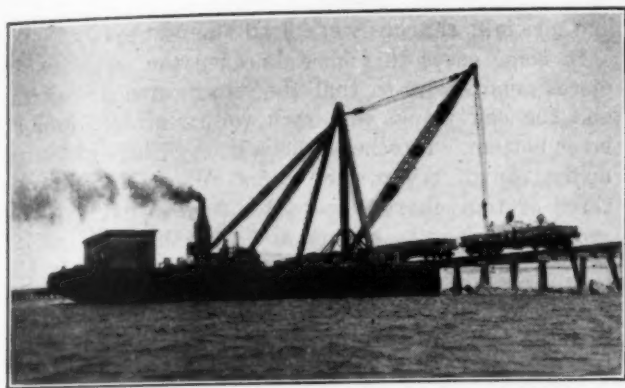


A SECTION OF THE NEW BREAKWATER SHOWING THE SIZE OF STONES HANDLED



are operated by three Clyde hoists. The rock is obtained by drilling 6-in. holes 20 ft. on centers about 20 ft. back from the face of the quarry and loading with about 25 kegs of powder each.

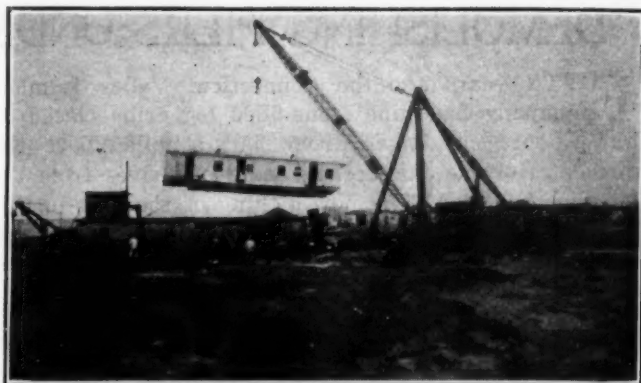
This rock is being placed in about 12 ft. of water in Corpus Christi Bay in front of the port site which lies just back of the shore line, the breakwater being parallel with the shore line and about  $\frac{1}{4}$  mi. from



DERRICK BARGE AT WORK ON A ROUGH DAY

the shore. Mr. DePuy's contract consists of placing 130,000 tons of riprap weighing from 15 lbs. to 10 tons. The small riprap from 15 lbs. to 200 lbs. is placed in the core and then covered with stone weighing from 3 to 10 tons. Cover stone weighing 28 tons has been handled in some instances.

In order to place this material in the bay, more than  $1\frac{1}{2}$  miles of trestle have been built, green pine being used and only two piles being driven in each bent where the riprap is to be deposited. The string-

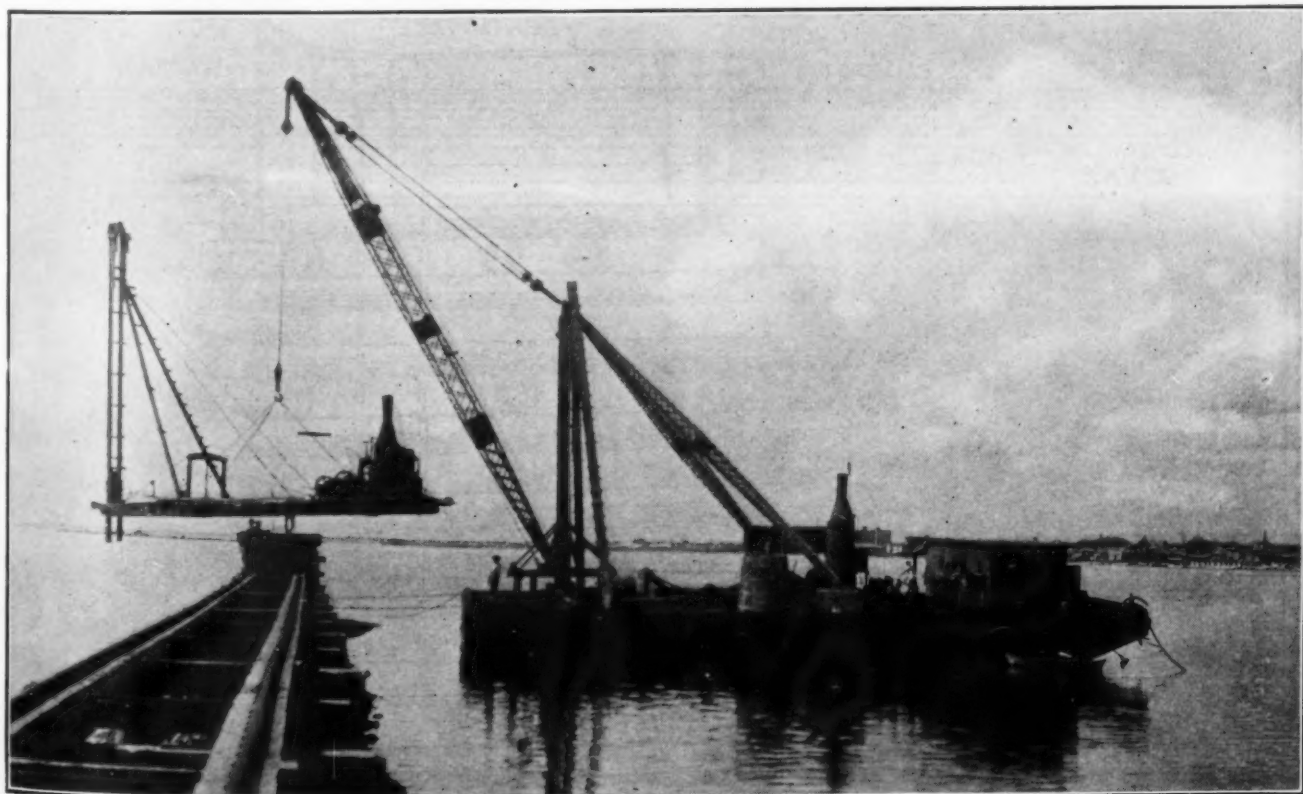


ONE OF THE ODD JOBS TAKEN CARE OF BY THE BARGE

ers are placed side by side tight and bolted together and the rails are spiked directly on top of the stringers without using ties. This makes it possible to place rock directly from the cars and build the breakwater section under the cars as they are run out on the trestle. The small rock is unloaded by hand over the sides of the cars and at the end of the cars and the cover stone being handled with a Clyde derrick barge. While the water in Corpus Christi is quite rough, due to the trade winds, the derrick barge works on the inside of the finished core, that is toward the land side, and is in comparatively calm water.

The Clyde derrick has a capacity of 15 tons with the boom extended to full radius and is operated by a Clyde steam hoist with boiler, swinging being accomplished by a separate steam swinging engine.

In operating the derrick barge, the two front corners of the barge are tied to the trestle piling and two anchors used to hold the back end in place.



PICKING UP PILE DRIVER BODILY

## DEMOLISHING PIERS UNDER WATER WITH DYNAMITE

**F**IFTY years ago the Connecticut Valley Lumber Company had nine stone-filled log cribs placed in the Connecticut River about half a mile above the present Holyoke dam to hold back log drives from the north. Logging being now a thing of the past in this vicinity, the Holyoke Water Power Company undertook to remove the submerged piers in order to make the stream safe for small power boats.

Each crib was about 25 ft. long and 18 ft. wide. In height they ranged from 10 ft. to 24 ft. They were built of hemlock logs, which proved to be as sound as on the day they were cut, spiked together with 3-ft. iron spikes, and most of them were faced on the upstream side with oak planks. When bids were asked for removing these piers the lowest bid received was \$1,100 per pier. It is, therefore, a record achievement for explosives that all nine of them were eventually demolished by an experienced blaster for less than \$2,000.

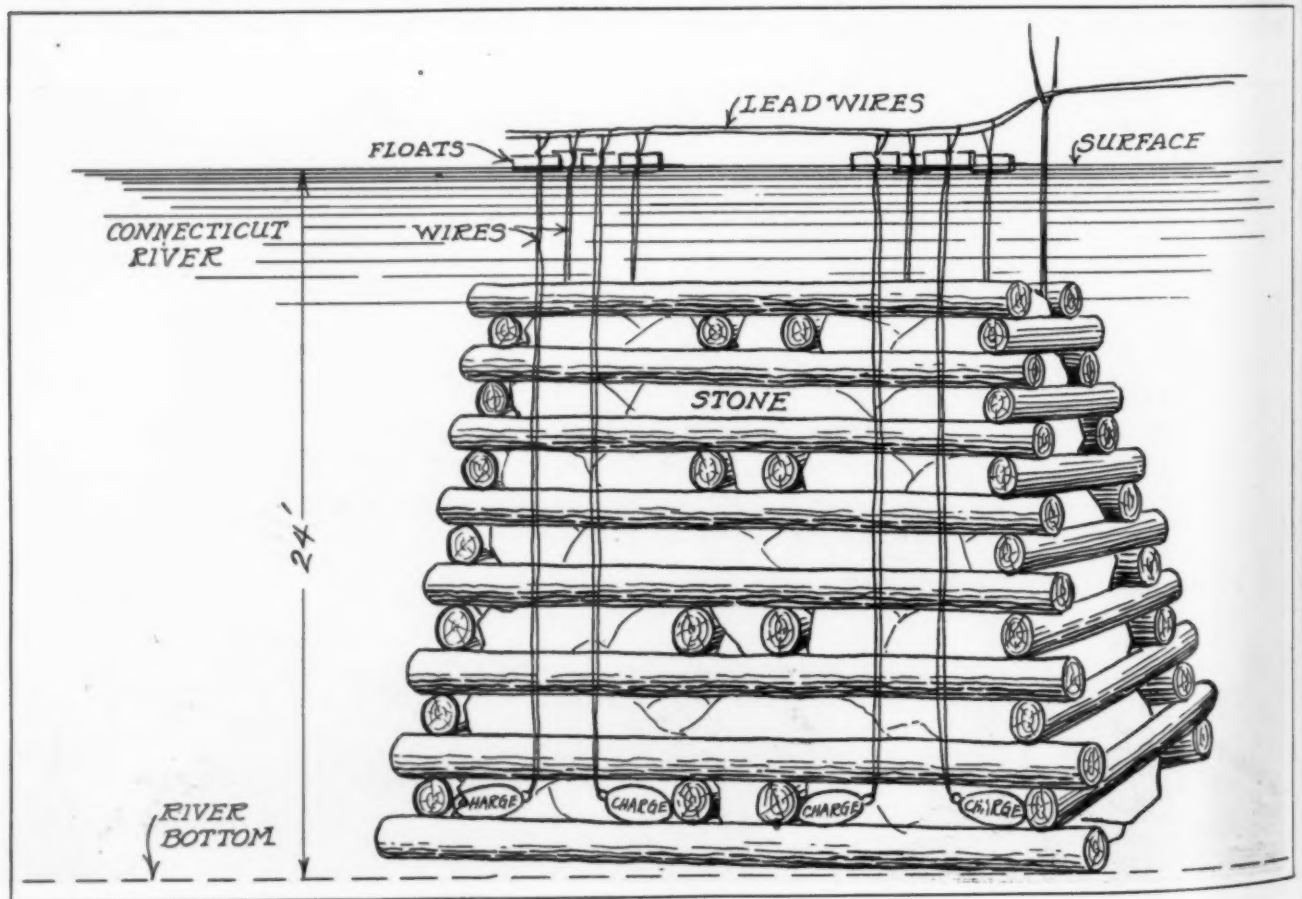
In the first attempt to do the work with explosives iron pipes were driven down into the small stone in the center of a pier and the dynamite was loaded through these. The explosion of charges in this position was ineffectual. Some stone was thrown up into the air, but most of it fell back into the cribs, and the logs were not budged.

William F. Hogan, a practical blaster of Holyoke, was then employed. He abandoned the plan of blasting the piers from the center, and set to work to blow the cribs apart from the outside. Operations were carried on from a raft, and charges were placed by a diver, at

times under 25 ft. of water. Eight 12-lb. charges of 60 per cent du Pont Gelatin Dynamite primed with 30-ft. electric blasting caps, were tied up in cement sacks and placed on the bottom log of the crib, 4 on each side. A small wooden float was attached to the ends of each pair of wires to bring them to the surface. There they were connected with leading wires and all eight charges were fired simultaneously.

In some cases this blast knocked the whole crib to pieces completely, so that the logs floated downstream and the oak planks and rock were scattered over the river bottom. In other cases a mass of logs was hurled up on top of the pile of stone. When this happened three or four charges were put down about 6 ft. deep around the logs to scatter and float them. Sometimes it was necessary also to scatter the stone by a blast after the crib was removed. For this purpose charges of about 12 lb. of the gelatin were bound on to boards and then tied up in cement bags to make flat packages. These were placed on top of the pile of stone in mudcap fashion and covered with bags of loam. The explosion spread the stone out over the river bottom.

By these methods the nine piers were demolished in eleven days with only five men working and at the low cost previously quoted. Mr. Hogan's success with this job may be attributed to two things: First, the use of sufficiently large charges of a high-grade explosive; and, second, his knowledge of where to place the charges in order to secure the particular result desired. In all, 1000 lb. of dynamite were used and 150 blasting caps.



HOW THE JOB WAS DONE

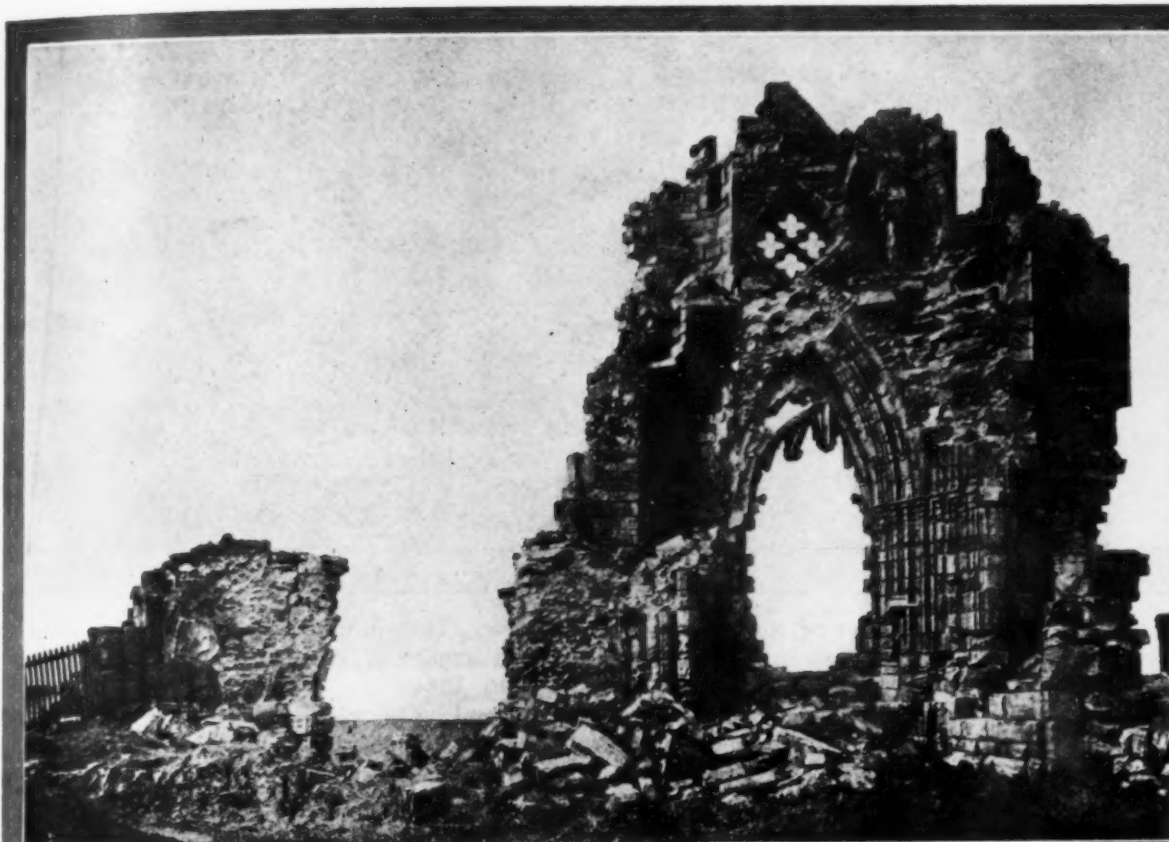


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## The Havoc of War



Restoring the damage done by German air raids during the war. These photographs were taken at Whitby Abbey, where reconstruction work is now in progress. © P & A

## WOODEN OVERCOAT PROTECTS BIG BUILDING

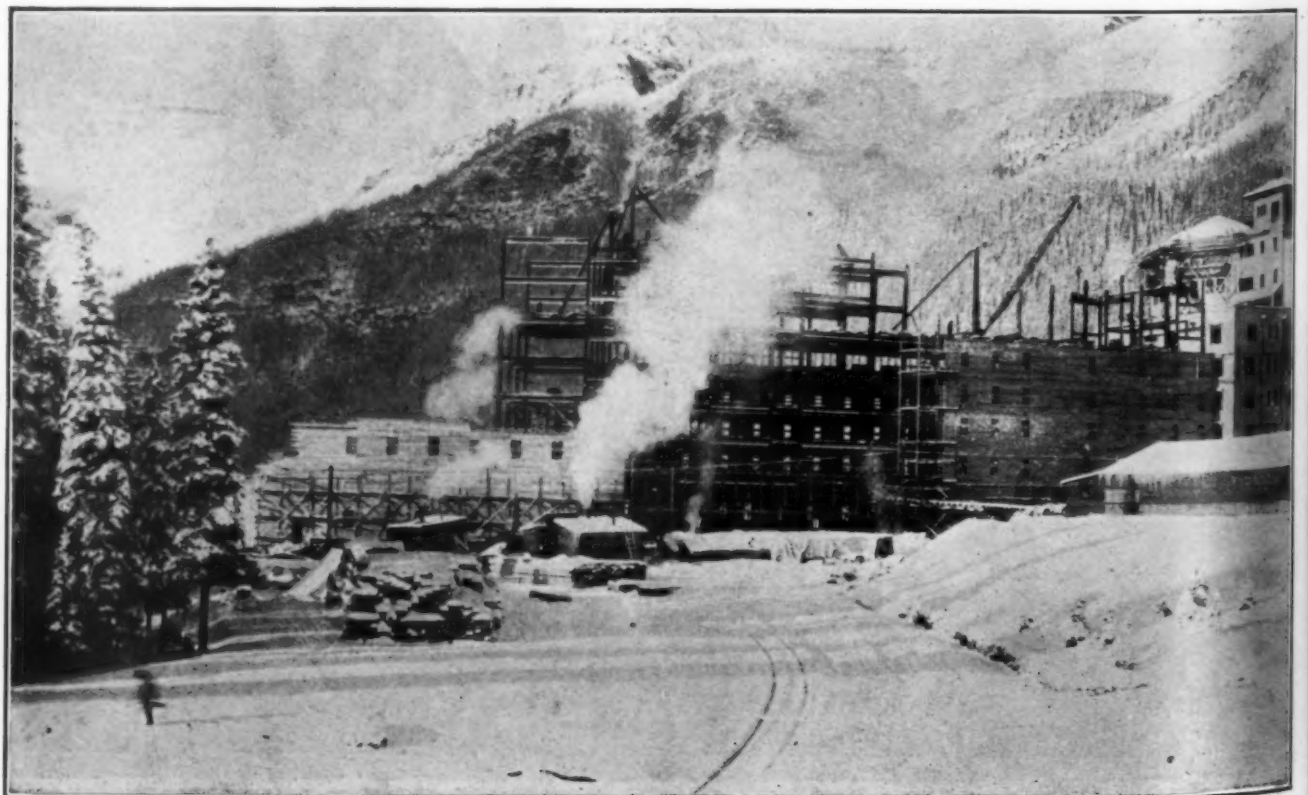
With Thermometer at 56 Below Outside Canadian Contractors Kept Right on Working on Construction of Hotel



ONE of the most notable examples of construction work on during the winter is shown in the photographs which accompany this article. The Chateau, a large hotel owned by the Canadian-Pacific Railroad at Lake Louise, British Columbia, was partly destroyed by fire during 1924, and it was decided to rebuild and enlarge the burned portion in time for the 1925 season. This meant working right through the winter, and as the thermometer at times goes as low as 56 degrees below zero, the difficulties seemed almost impossible

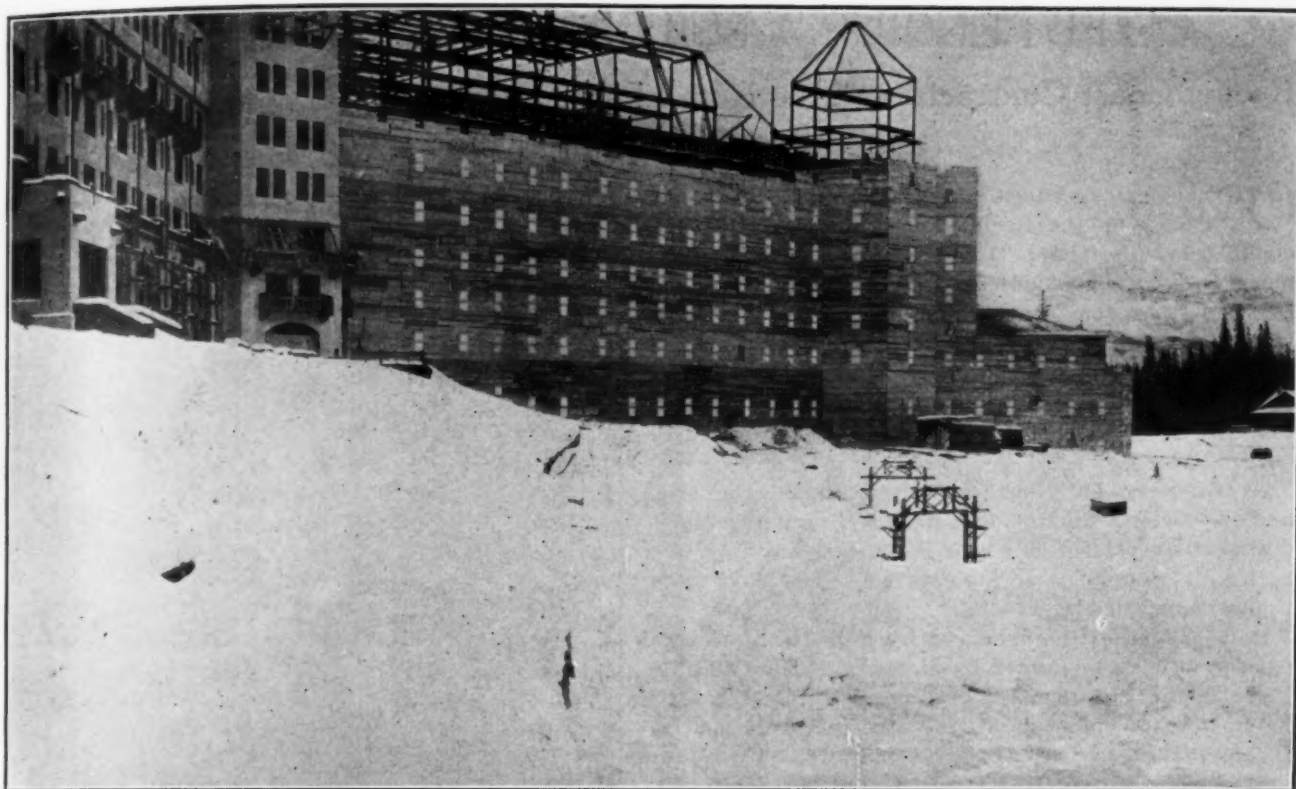
to overcome. The job was awarded to the Carter-Halls-Aldinger Company of Winnipeg, and work was begun on Sept. 15, 1924.

The photographs show better than any printed description the manner in which the work was carried on during the cold weather. Although the building is 300 ft. long, 52 ft. wide and 10 stories high, a wooden shell was built as soon as the steel work was well under way. This wooden shell was lined with tar paper and windows were cut in it. It was placed 5 ft. away from



THE WOODEN SHELL GOING UP AROUND THE HALF FINISHED STEEL WORK





A CLOSE-UP OF THE WOODEN SHEATH

the steel frame and enclosed the entire building. About 10,000 lin. ft. of 1¼-in. pipe was hung on the inside of the wooden shell. This pipe was connected with temporary boilers and the steam was turned on and kept on until the work was finished. A summer temperature was maintained in spite of the fact that outside the

thermometer was away below zero. The laying of the brick was started as soon as the concrete work was far enough advanced to allow for it and all the plastering was done during the cold weather. The building was finished on June 1 in plenty of time for the opening of the tourist season.



THE FINISHED STRUCTURE READY FOR THE TOURIST SEASON

## PUTTING UP A BUILDING IN SIX MONTHS

Pacific Coast Contractors Make Remarkable Speed in Erection of Twelve-Story Store and Office Structure

ONE of the speediest construction jobs ever put through on the Pacific Coast has recently been completed in Portland, Oregon, by the Hansen Hammond Company, general contractors of that city. The building was constructed for the Bedell Company which maintains dry goods stores in many of the principal cities throughout the country. The Bedell store occupies the first two floors of the building and the remainder of the 12-story structure is devoted to office space.

A two-story building formerly occupied the site, and the Hansen Hammond Company began tearing it down on March 1 of this year. The new building was ready for occupancy on September 8, a few days more than six months later.

A good idea of the speed with which the work was carried on may be gained by glancing at the two photographs on this page. The photograph in the left-hand column which shows the steel work carried to the eighth story was taken on May 16. The other photograph, which shows the fireproofing and concrete completed all the way to the roof, was taken on June 27, one month and 11 days later. As before



STEEL WORK UP TO EIGHTH STORY

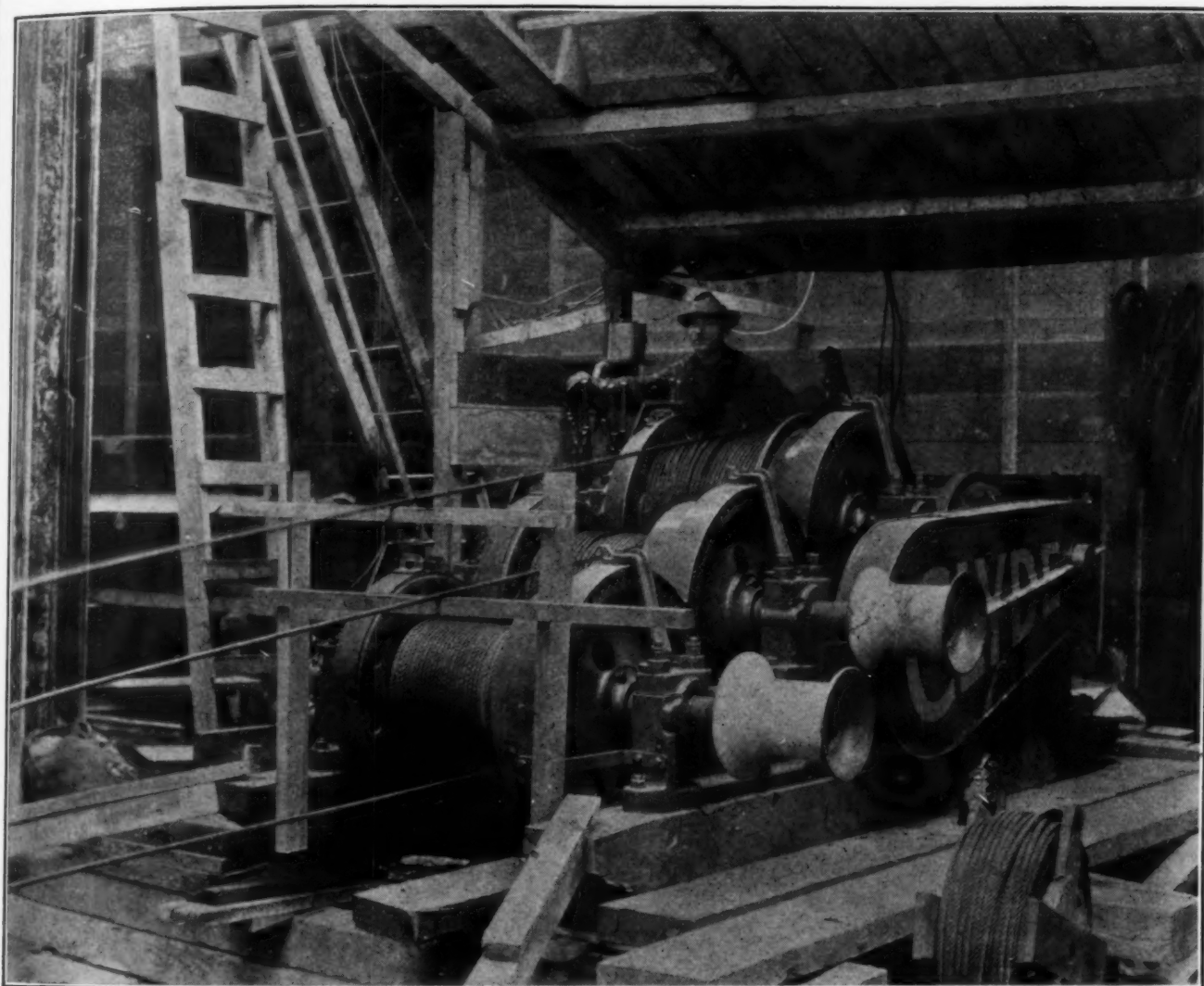


THE BUILDING 42 DAYS LATER

stated, the entire building which was faced with terra cotta, was finished a little more than two months after the photograph in the right-hand column was taken.

A record like this demands a good organization plus construction equipment of the most modern type. The Hansen Hammond Company handled the entire job with modern equipment and utilized machines in place of hand labor wherever it was possible. All of the materials which entered into the construction of the Bedell Building were handled by the 60 hp. Clyde electric hoist which is shown in the photograph on page 21. This hoist is equipped with brake bands which permit loads to drop fast without burning out the friction blocks or bands and the rear drum is arranged to permit high speed in handling the concrete bucket. The other drums were used for general hoisting duty about the building. One man operated from the position shown in the picture convenient to all of the operating levers. The silence with which the electric hoist works was frequently commented upon during the progress of the job. One reason why it ran so quietly was that the motor was con-





THE HOIST WHICH HANDLED ALL THE MATERIALS AND HELPED TO SPEED UP JOB

nected with the hoist by a silent chain running in an oil-tight housing. Only the hum of the motor could be heard. As soon as the Bedell building was com-

pleted the hoist was moved over to the new Pacific Building, where it is doing its part in creating another fine construction record.

## CONTRACTORS TO MEET IN PORTLAND, OREGON

**T**HE Associated General Contractors of America will hold their annual meeting in Portland, Ore., during the week of Jan. 18, 1926. As this is the week following the Convention and Road Show of the American Road Builders' Association in Chicago, a great many contractors from the East who are interested in the road building end of the construction industry will arrange to attend both conventions. A special train from Chicago to Portland will be run, leaving Chicago on Friday evening, Jan. 15. A number of stops will be made

on the way to visit the various points of interest.

The contractors of Portland have made arrangements for entertaining their fellow contractors from the other sections of the country, and the Convention is expected to be one of the best attended in the history of the Associated General Contractors. Information in regard to the convention, railroad rates, special trains, etc., may be obtained by writing to the general offices of the Associated General Contractors, Munsey Building, Washington, D. C.

## HIGHWAY RESEARCH BOARD MEETS

**T**HE Highway Research Board of the National Research Council will hold its Fifth Annual Meeting in Washington on Dec. 3 and 4. The sessions will be held in the building of the National Academy of Sciences and the National Research Council. As usual

the meeting will be open to all persons engaged or interested in any branch of highway engineering.

The meeting will be under the direction of Charles M. Upham, State Highway Engineer of North Carolina and Director of the Highway Research Board.

## ROAD BUILDERS WILL FLOCK TO CHICAGO NEXT MONTH

**T**HE American Road Builders' Association, which was organized 22 years ago and ever since has been a most important factor in the remarkable development of highway construction in the United States, will hold its annual Convention and Road Show in Chicago, Jan. 11 to 15. The convention will be held at the



WILLIAM H. CONNELL

Congress Hotel and the show will occupy the Coliseum and adjoining buildings.

This great gathering of men actively engaged in the highway industry, held at a time when in most sections of the country the actual building of roads is necessarily at a standstill, has grown to be one of the greatest annual conventions of any kind in the United States. Last January the registration list contained more than 16,000 names and every hotel in Chicago was filled. It is expected that an even greater number will attend the convention and show next month.

Contractors, public officials, engineers, and all others whose work requires that they keep up to date in the latest developments in highway construction, have for many years made it a habit to attend the American Road Builders' Association Convention and Show. Their number increases each year.

W. H. Connell, President of the American Road Builders' Association, is the Engineering Executive and Deputy Secretary of Highways of the State of Pennsylvania and is a vice-president of the Highway Research Board. He has planned a program for the convention

next month which promises to set a new mark in American Road Builders' Association history. The program has been divided into two sections, one which will appeal particularly to contractors and the other which will be of chief interest to highway engineers.

The Road Show at the Coliseum will once more be under the direction of Charles M. Upham, state highway engineer of North Carolina and Director of the Highway Research Board. Mr. Upham has managed the last two road shows and under his direction the show has increased greatly in size and in quality. It is expected that more than 300 carloads of road machinery will be housed in the Coliseum and adjoining buildings.

One of the main events of the week will be the annual banquet which will be held at the Congress Hotel on Jan. 13. Charles M. Schwab will be the chief speaker at this banquet.

Reduced railroad rates will be in effect from all parts of the country during the week of the Convention and Show. The American Road Builders' Association main-



CHARLES M. UPHAM

tains a Hotel Bureau which will make reservations for those desiring to attend the show.

All requests for information should be sent to the American Road Builders' Association at the Congress Hotel, Chicago, Ill., as the association maintains an office there from Dec. 1 until the week of the convention and show. All inquiries will be attended to promptly upon receipt.

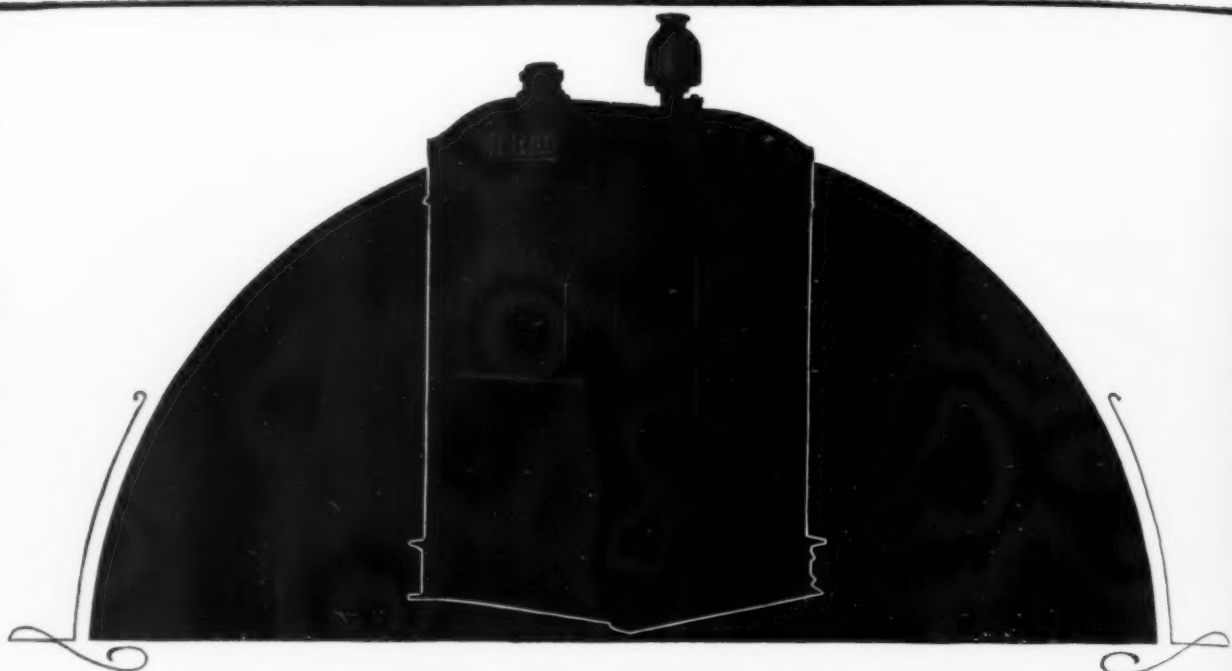


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## A 'Ditto' Engine is Different!

Just as no two persons are identical—so are even 'Ditto' engines different.

Le Roi was the first 2 cylinder engine of the light weight, heavy duty type on the market.

Le Roi was the first multiple cylinder engine extensively used in the contracting and industrial fields.

For more than a year, Le Roi was alone in its field.

Le Roi is accepted by most manufacturers of concrete mixers, portable saw rigs, industrial tractors and locomotives, air compressors, hoists, centrifugal and force pumps, portable conveyors, loaders and other power operated machinery.

Le Roi is accepted by contractors because it is economical and dependable power.

Le Roi is accepted by 'Ditto' engine builders aspiring to recognition in this distinctive field.

All leaders pay for their leadership—And Le Roi does gladly.

'Ditto' engines may be similar in appearance but *they are* different.

Work, not Words, decides leadership—follow the Le Roi succeeding advertisements to know why Le Roi *is the accepted* engine—how it has been tried, tested and proven.

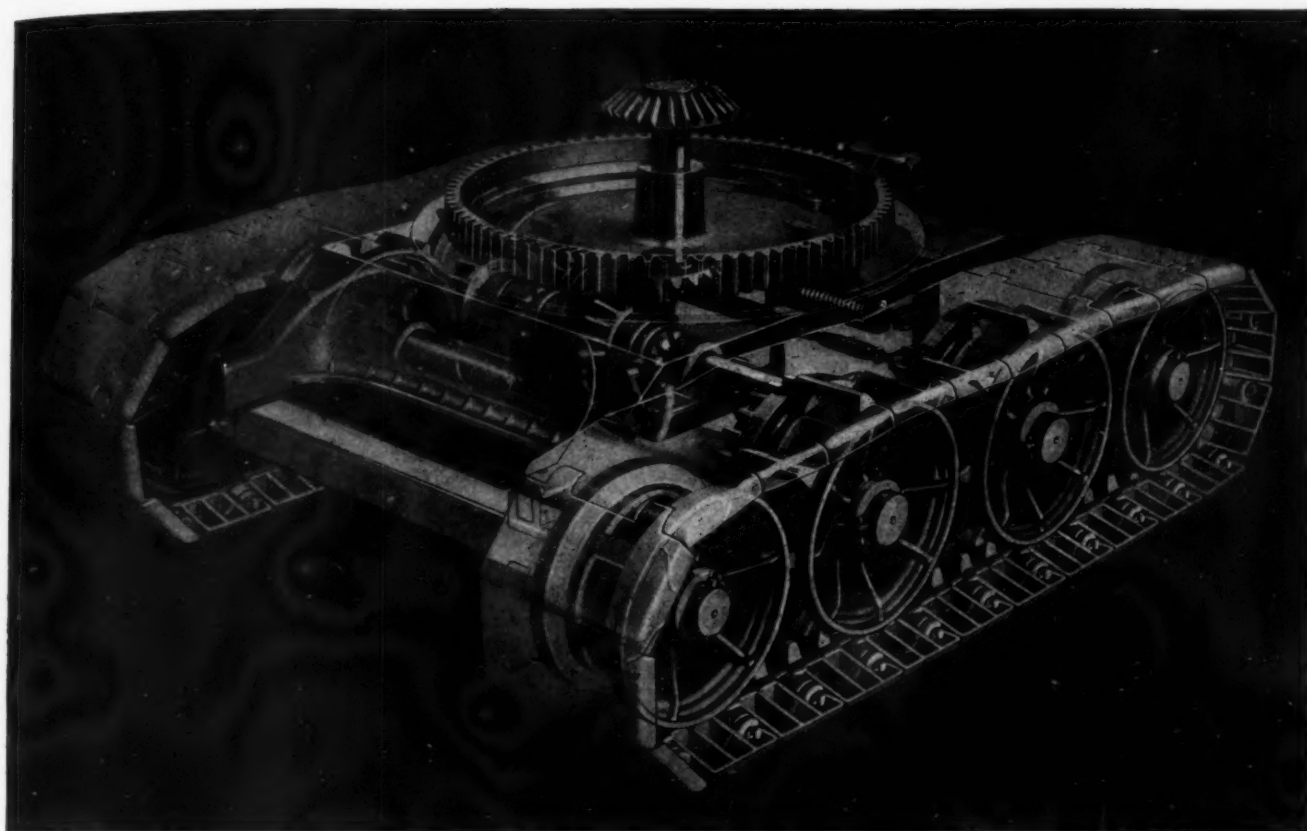
Le Roi Company, Milwaukee

# LE ROI ENGINES

## for dependable power!







## **It's Here—** *The Center Drive Truck* **The Greatest Shovel Improvement in Many Years**

A continuous tread truck that will travel better, climb better, steer easier, last longer and do many other surprising things never before done by or expected of a shovel truck. The Center Drive does it.

**Send for interesting Bulletin telling all about it.**

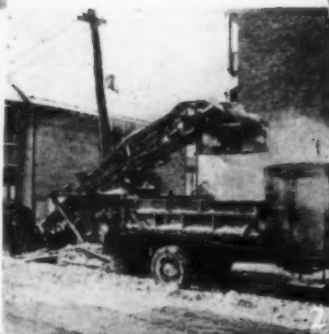
THE THEW SHOVEL COMPANY, LORAIN, OHIO



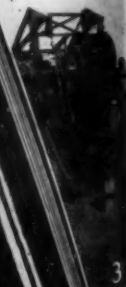


1—The Barber-Greene Loader, model 42, that is being used by contractors all over the country.

2—The Barber-Greene Snow Loader. This machine can be converted into a material loader for summer work and offers the contractor a chance to make extra money during the winter 'on snow removal.



3—There are Barber-Greene Conveyors for all manner of material handling jobs and Barber-Greene Ditchers to handle your trenching contracts.



## What 1924 Has Developed in Contracting Layouts

Long and consistent runs on road and street paving jobs are almost entirely dependent upon the ability of the contractor's material handling equipment to keep his mixers busy. Every minute that a mixer loses in waiting for materials is reflected in decreased yardage and increased costs. It is the same on other construction jobs.

The contracting business, today, is highly competitive. It has become necessary for the contractor to pay more attention to his material handling layouts and equipment, not only to increase his daily yardage, but to cut his overhead expenses.

To assure a steady flow of materials to their mixers, an increasing number of contractors are turning to the Barber-Greene System. This means the elimination of men on sub-

grade jobs, elimination of expensive units on Central Storage and positive elimination of delays by batching at advance storage near the mixer.

Every year new methods and layouts are developed by contractors in the field in connection with their Barber-Greene equipment. During the past year, there have been many new ones that have proven extremely successful.

The Barber-Greene Company has assembled the more conspicuous of these jobs into their new booklet, *Contracting with Barber-Greenes*. In addition to describing layouts it illustrates them, and, in a number of instances, shows the savings that Barber-Greenes have effected.

As *Contracting with Barber-Greenes* is so obviously of value to all contractors, it will be sent to all those requesting it.

BARBER-GREENE COMPANY—Representatives in 50 cities—530 W. Park Ave., Aurora, Illinois

# BARBER

Portable Belt Conveyors

Coal Loaders . . . Automatic



# GREENE

Self Feeding Bucket Loaders

Ditch Diggers . . . Coal Feeders

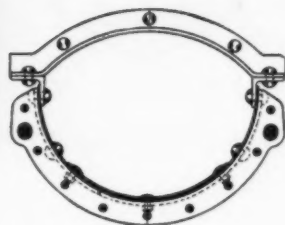


## LAKEWOOD ARCHED BAND CHUTE

Handling the output of two one-yard mixers thru one line of chute and permitting the use of large aggregate—the ideal chute cross section for dam construction.

Now in use on many of the World's largest concrete projects.

*Write for Bulletin No.  
23-S covering Lakewood  
Chuting Equipment.*



*A cross section of  
Lakewood arched band  
chute which is made in  
14 in. and 18 in. sizes.*

*Looking down a line of Lakewood Arched Band chute from a point  
near the mixers. One of two such lines on this particular job.*

# The Lakewood Engineering Company

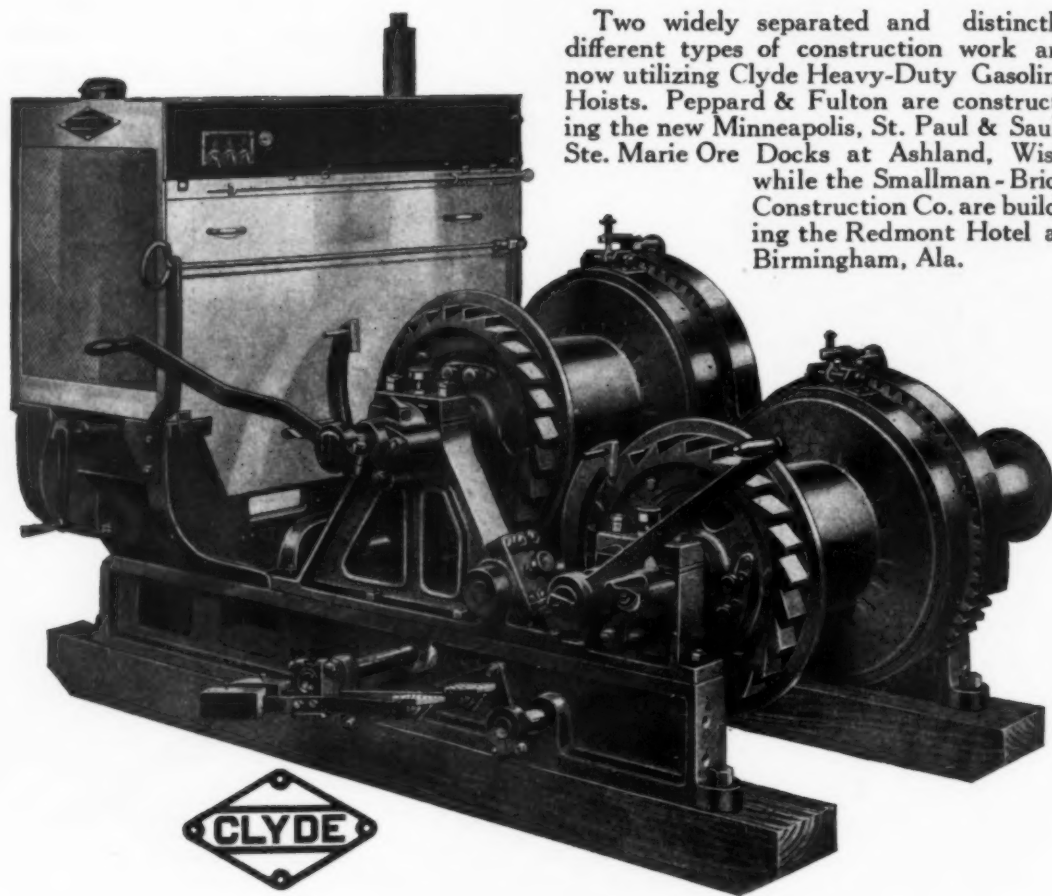
Cleveland, U. S. A.

# CLYDE

## Standard Hoists and Derricks

### For the General Contractor

#### STEAM · ELECTRIC · GASOLINE · BELT



Two widely separated and distinctly different types of construction work are now utilizing Clyde Heavy-Duty Gasoline Hoists. Peppard & Fulton are constructing the new Minneapolis, St. Paul & Sault Ste. Marie Ore Docks at Ashland, Wis., while the Smallman-Brice Construction Co. are building the Redmont Hotel at Birmingham, Ala.

Manufactured in Sizes and Types to Meet Any Construction Requirements.

*You'll Take Pride in Your Clyde!*

## CLYDE IRON WORKS SALES COMPANY

Sole Distributors for CLYDE IRON WORKS, Duluth, U. S. A.

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## *Any Part Will Fit if It's a Sterling*

As it has paid us to standardize our product, so it will pay you to standardize your purchases.

It costs extra in time and money to keep a miscellaneous assortment of wheelbarrows in repair. First, to find out what repair is needed, and then to locate the desired repair.

All Sterling parts are interchangeable. Any part will fit if it's a "Sterling." All tray holes are punched alike, regardless of the capacity of tray. One size and style leg, one size and style wheel. All handles are bored alike.

If all of your wheelbarrows are "Sterling's" you can cash in to the limit on every part. You can interchange parts of old barrows to assemble new ones. When you need repairs, you can get them close at hand from some one of hundreds of Sterling agents. Just order a handle, wheel, leg or tray—IT WILL FIT.

## **Sterling Wheelbarrow Company**

NEW YORK  
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CANADIAN AGENTS: MESSERS LINTON, MONTREAL, TORONTO, WINNIPEG, VANCOUVER

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## The Jaw Crusher that is Different

And what this Difference means to You

THE important thing is not so much the fact that the Western-Aurora Crusher has broken away from, and left behind, the old Blake Type Jaw Crushers with their springs and toggles as it is the fact that the unique Western-Aurora design means much to you in the way of service and satisfaction.

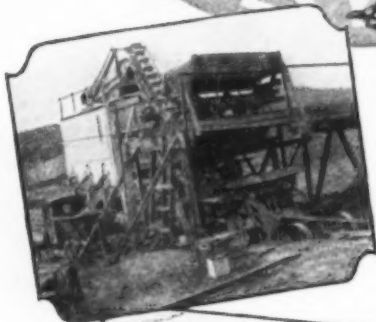
Space won't permit anything like a complete description of the now famous Western-Aurora two-blow stroke, but the coupon will bring you a catalog that tells all about it. What counts is that as a result of this continuous two-blow stroke and freedom from springs and toggles a Western-Aurora Crusher in your plant means:

Greater output,  
Fewer delays,  
Less power required for operation, and  
Longer life for the crusher itself.

The catalog explains why you are sure to enjoy these advantages from

### *The Jaw Crusher that is Different.*

When choosing a crushing plant, your first thought is naturally of the crusher itself—but elevator, screen and bin are of almost equal importance. This fact is always in the minds of Western engineers, and as a result you will find each unit in the Western-Aurora Crushing and Screening Plant on a par with the crusher, and ready to give you the same standard of service.



You will find many worth while ideas and much valuable information in this catalog. Better clip the coupon now, while you think of it.



I would like the catalog.

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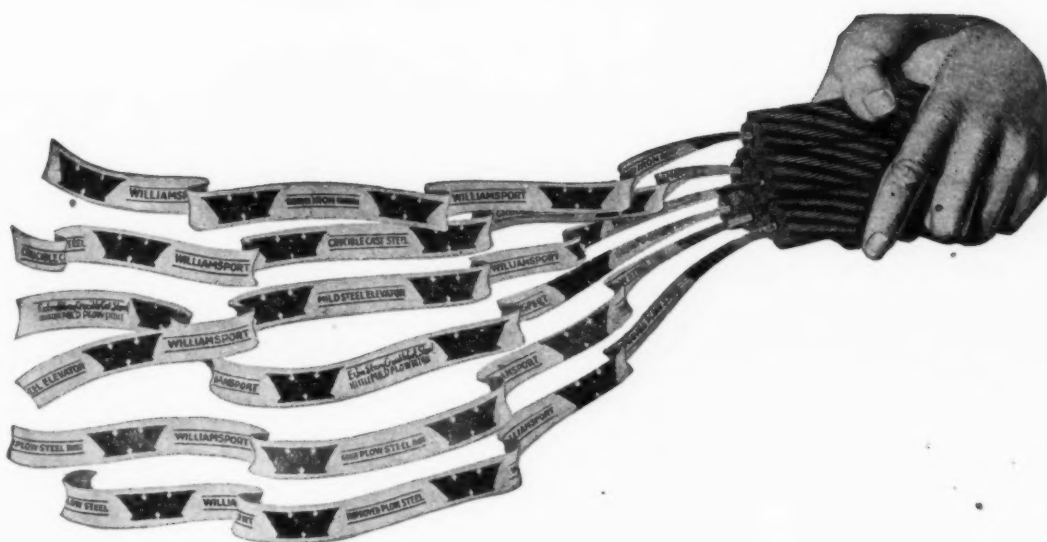
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**THE AUSTIN-WESTERN  
ROAD MACHINERY CO.**  
CHICAGO



# TODAY

## *Engineers and Contractors*

—and others who are responsible for the lives of workmen, and manufacturers of machines using Wire Rope who are interested in safeguarding their equipment, are using

# WILLIAMSPORT

*Telfax Tape Marked-Factory Certified*

# WIRE ROPE

for its longer life and the protection it gives.

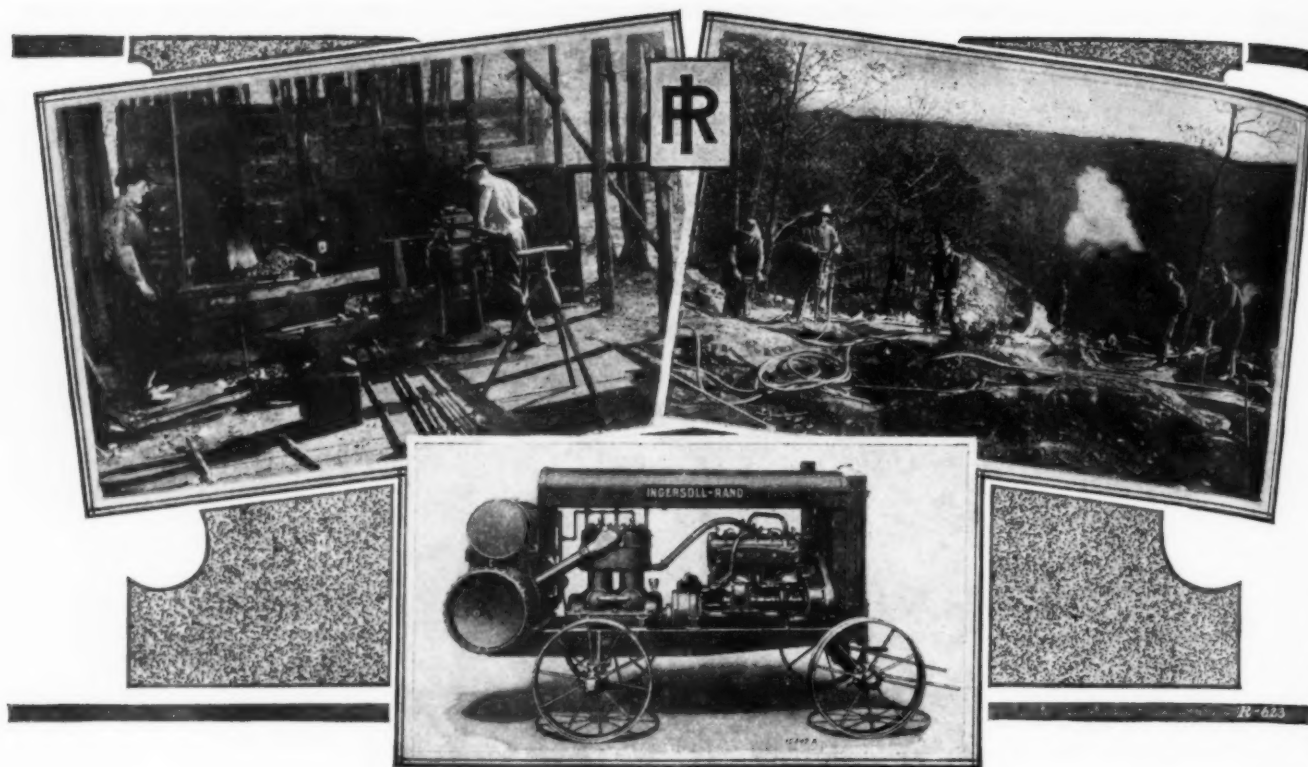
It is the only Wire Rope made that carries positive evidence of its grade from the moment it becomes a rope, a protection of vital and far reaching importance that every user recognizes.

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## A Complete Rock Removal Plant for the Road Contractor

### Ingersoll-Rand Portable Air Compressors "Jackhamer" Drills and "Leyner" Sharpeners

Ingersoll-Rand Type Twenty Portable Air Compressors are available in 60, 91, 160, 210, 250 and 309 cubic feet sizes.

There are five sizes and fifteen types of "Jackhamer" Drills. From this selection you can get one that will exactly suit your particular needs.

"Leyner" No. 33 Drill Steel Sharpeners rapidly sharpen and form drill steel bits and shanks.

*This combination is a real money-maker.*

I-R PORTABLE AIR COMPRESSORS				
Air Cylinders		Type	Piston Displacement	
Bore	Stroke			
4 1/4	4	Twenty	60 cu. ft. free air per minute	
5	5	Twenty	91 cu. ft. free air per minute	
7	6	Twenty	160 cu. ft. free air per minute	
8	6	Twenty	210 cu. ft. free air per minute	
9	8	Twenty	250 cu. ft. free air per minute	
10	8	Twenty	309 cu. ft. free air per minute	

"JACKHAMER" DRILLS		
TYPE	BCR-430	DCR-23
Weight—lbs. Complete with fittings	47 1/2	58
Length—Inches	28 1/2	22 1/2
Steels—Hollow Hexagon, inches	3/4	1
Air Hose—Recommended, inches	3/4	1

"LEYNER" SHARPENERS	
TYPE	No. 33
Weight, Machine Bare—lbs.	925
Weight, Floor Stand—lbs.	33
Floor Space—feet	3 x 3
Height—Inches	48
Maximum Steel Handled	1 1/4" cruciform 1" other sections
Maximum Size Bit Forged—Inches	2
Capacity Steels per Hour	50-100
Air Pressure Used—lbs.	70-100
Hose Recommended—Inches	1

INGERSOLL-RAND COMPANY—11 BROADWAY, NEW YORK CITY

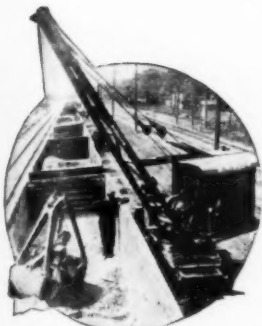
*Offices in principal cities the world over*

FOR CANADA REFER CANADIAN INGERSOLL-RAND CO., LTD., 260 ST. JAMES STREET, MONTREAL, QUEBEC

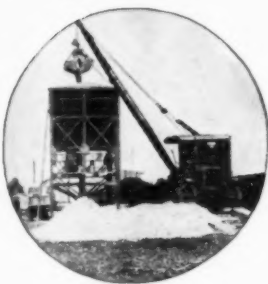
# Ingersoll-Rand

Booth No. 14—Road Show

# Universals Paid Dividends to Highway Industry In 1919 - 1920 - 1921 - 1922 - 1923 And Again in 1924



Unload Cars



Charge Bins

A great fleet of motor truck mounted Universals went into the service of States, Counties, and highway contractors during 1924. Year after year Universal quality, mobility, and speed have proven the wisdom and safety of the Universal investment.

Examine the pictures and imagine the wide range of work a single Universal Crane will do for you

Then consider Universal's year'round ability to earn the salary of those men you must keep through each winter.

*See the Universal at the Chicago Road Show January 5th to 9th. If you cannot get there, write now for Highway Bulletin No. 28-C.*

**THE UNIVERSAL CRANE COMPANY**  
910 Swetland Bldg., Cleveland, Ohio  
Branches and representatives in all principal cities

**UNIVERSAL**



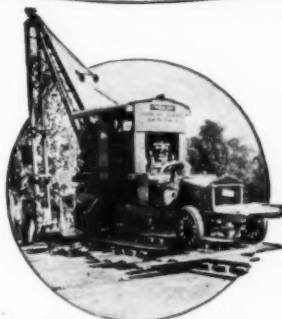
Light Grading



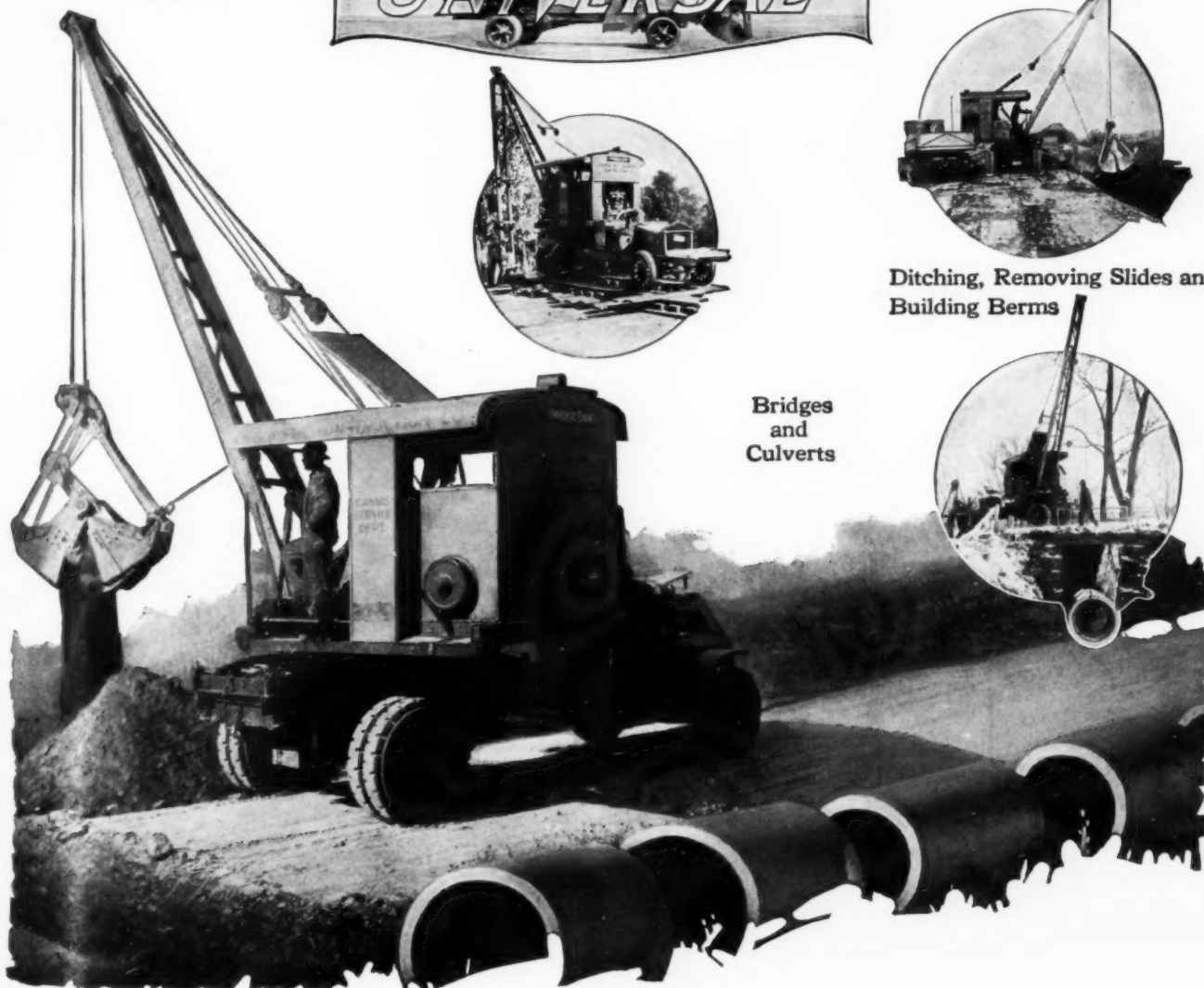
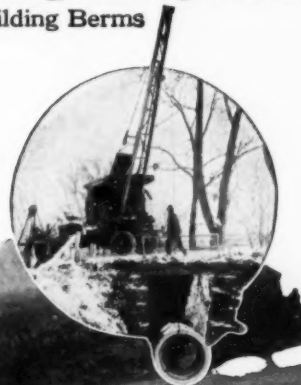
Street Widening



Ditching, Removing Slides and Building Berms



Bridges and Culverts





The Erie Plant of the General Electric Company handles its waste in large Western Air Dump Cars, using the material for filling the grounds about the plant.

## WESTERN DUMP CARS FOR PLANT HAULAGE

**M**AY we send you our special catalog S-55 which describes the methods used in various large industrial plants for handling waste—cinders, burnt-out molding sand, etc.



Western Air Dump Cars will dump instantly and inexpensively anything that is dumpable, and will solve your plant haulage problem.

**Western**  
*That's Why*

Western Dump Cars are made in all practical sizes from 1 cubic yard up, the 45-yard size having been designed for handling such bulky material as cinders, coal, etc. It is a standard 30-yard, like that in the picture, with removable extensions to the sides and ends.

Write to-day for the catalog.

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### Western Wheeled Scraper Co.

Founded 1877

*Earth and Stone Handling Equipment*

AURORA, ILLINOIS.



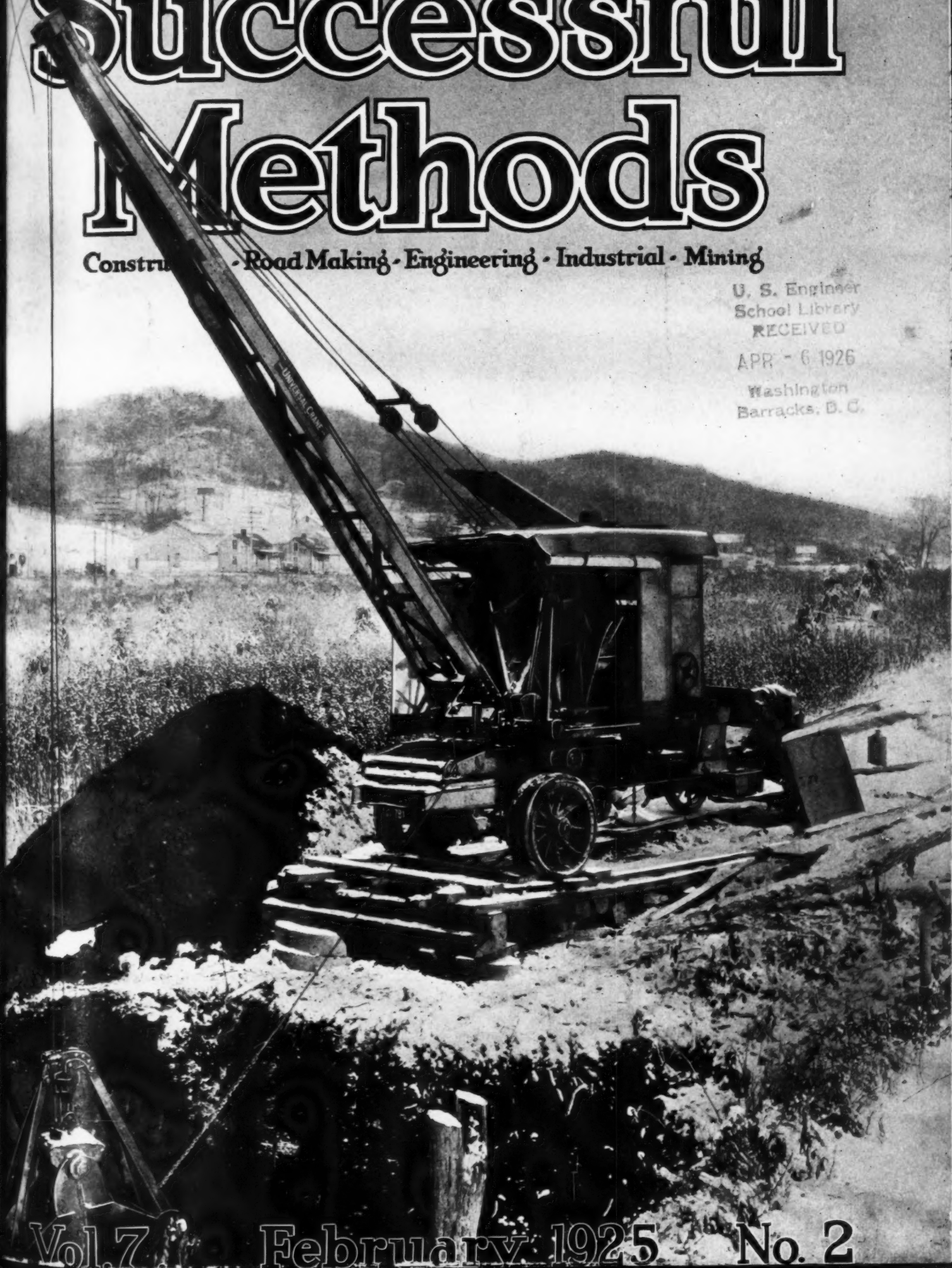
# Successful Methods

Construction • Road Making • Engineering • Industrial • Mining

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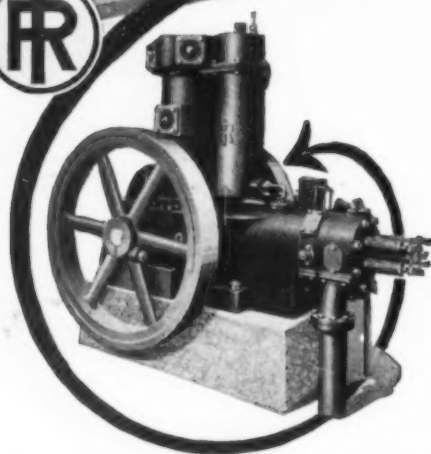
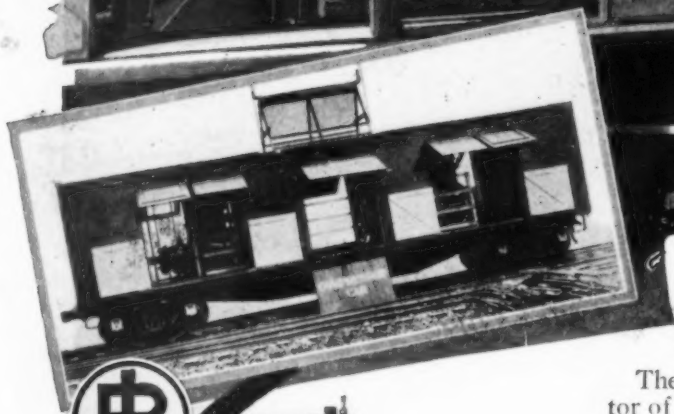
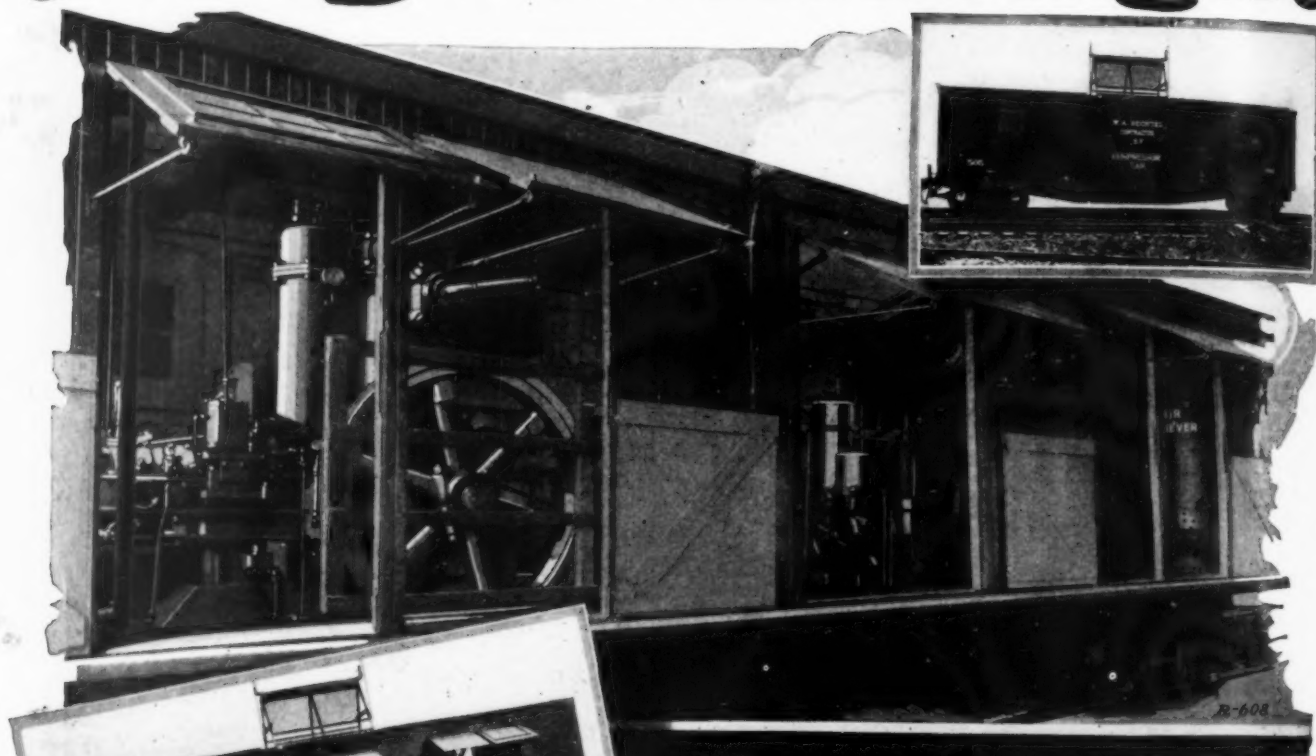
APR - 6 1926

Washington  
Barracks, D. C.



Vol. 7 February 1925 No. 2

# ***OIL ENGINE — AIR COMPRESSOR CAR***



## **A MOBILE COMPRESSOR PLANT**

### **I-R OIL ENGINE—AIR COMPRESSORS IN W. A. BECHTEL'S COMPRESSOR CAR**

The Compressor Car built by W. A. Bechtel, a railroad contractor of San Francisco, contains two Ingersoll-Rand Type "POV-2" Oil Engine—Air Compressor Units. Each unit actually delivers 207 cubic feet of free air per minute at 100 pounds discharge pressure, with a fuel consumption of three gallons per hour.

Type "POV-2" oil engine—air compressor units are ideal for the contractor. They can be mounted on skids or on standard railroad cars. The entire plant can be moved easily from one job to another.

These oil engine—air compressors are rugged, simple and reliable—and above all the cheapest source of air power.

*Let our engineers help solve your compressed air problems*

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Offices in principal cities the world over  
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55-80E

# **Ingersoll-Rand**



# New Bulletins!

## Send for Your Copies

### Lakewood Finishers

Bulletin 42-A describes the Lakewood Tamper and Screed. The Tamper spreads, tamps and belt floats the concrete. The Screed spreads, surfaces and belt floats. Full details are given about each machine—the advantages for both contractors and engineers—operation on half width construction and also their use on city streets.

### The Subgrader

Bulletin 46. The Subgrader reduces the time and labor of fine grading and insures a true grade. Six years' experience has proved beyond doubt that no other tool on the job can make greater savings than the Lakewood Subgrader. This Subgrader is used on truck-haul jobs as well as with narrow-gauge plants. Full details are given in the new bulletin.

### The Carr Form

Bulletin 45. The Carr Form was designed for mechanical finishing. It has a round top which is self-cleaning. The wedge lock joint insures a rigid connection and a perfect alignment of the top surface. The sections are in 12 ft. lengths. Flat stakes may be driven anywhere along the base. The reasons for these features are told in detail in this new bulletin.

### Narrow-gauge Track, Cars and Batch Boxes

Bulletin 41 contains full details about Lakewood narrow-gauge equipment. Riveted track with pressed steel ties, Tip Over Steel Batch Boxes with adjustable trunnions, Batch Box Cars with a heavy frame, roller bearings, spring draw bars and bumpers, spring pedestals and heat-treated axles. In addition there is a description of the combination-haul plant, utilizing both narrow gauge and motor trucks.

Lakewood  
Engineering  
Company  
Cleveland, Ohio

Use the Coupon

Please send me your  
new bulletins as checked:

- ☐ Lakewood Finishers  
☐ The Subgrader  
☐ Carr Forms  
☐ Narrow-gauge track, cars and batch boxes

Name .....

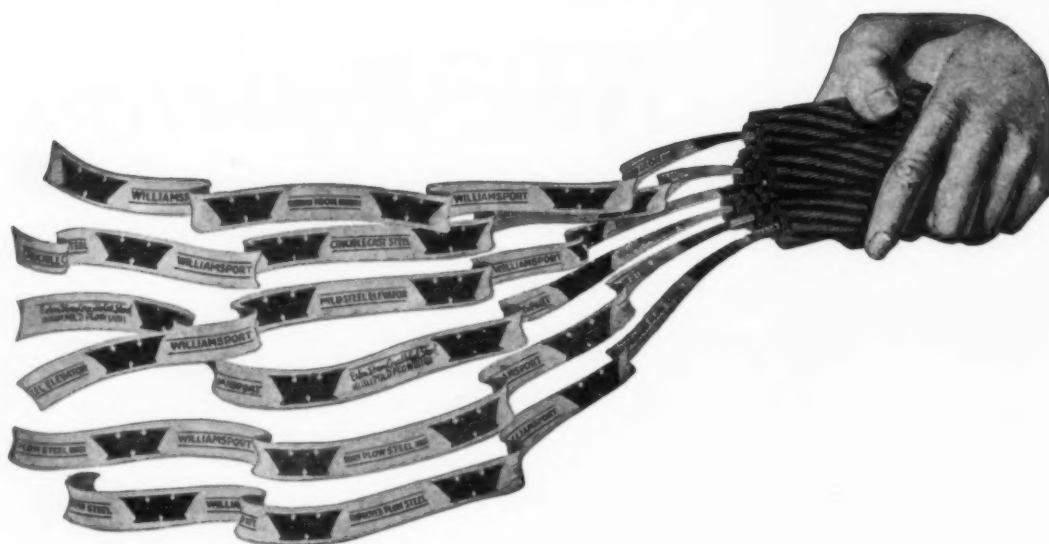
Address .....

City ..... State .....

**The Lakewood Engineering Co.**  
 Manufacturers of Construction Equipment  
 Cleveland, Ohio







# TODAY

## *Engineers and Contractors*

—and others who are responsible for the lives of workmen, and manufacturers of machines using Wire Rope who are interested in safeguarding their equipment, are using

# WILLIAMSPORT

*Telfax Tape Marked-Factory Certified*

# WIRE ROPE

for its longer life and the protection it gives.

It is the only Wire Rope made that carries positive evidence of its grade from the moment it becomes a rope, a protection of vital and far reaching importance that every user recognizes.

## WILLIAMSPORT WIRE ROPE COMPANY

Main Office and Works:  
Williamsport, Pa.

Gen'l Sales Office  
Peoples Gas Bldg., Chicago, Ill.

# "Best for Heavy Duty"

Boehm Bros.  
Buffalo, N. Y.

Gentlemen:

The "Sterling Wheelbarrows" purchased in the past have performed in a very satisfactory manner.

The small equipment item in our business, assuming such great proportions, caused an investigation into the matter some time ago. The result was our own standardization of all small tools based upon tests and usage in actual performance on the job.

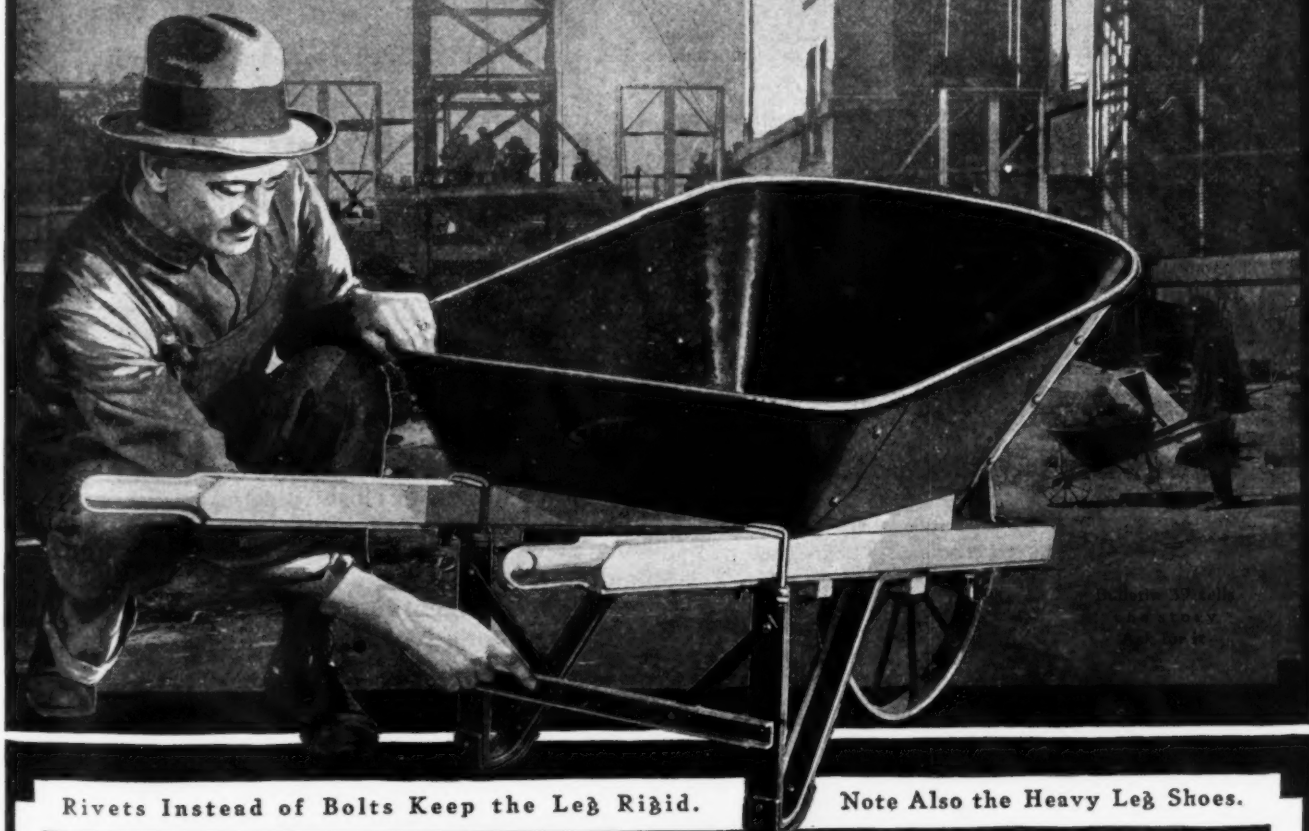
In wheelbarrows the "Sterling" was certainly foremost of six different brands used. We are now ordering the "Sterling" only, having thoroughly convinced ourselves it is the right one for heavy duty.

Very truly yours,

BOEHM BROS., INC.

*R. J. Braun*  
(Manager)

RJB:MW



Rivets Instead of Bolts Keep the Legs Rigid.

Note Also the Heavy Legs Shoes.

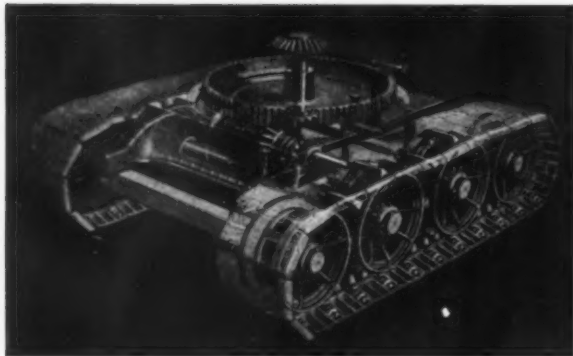
## STERLING WHEELBARROW COMPANY

STERLING ON A WHEELBARROW MEANS MORE THAN STERLING ON SILVER

Milwaukee

MANUFACTURED FOR THE EUROPEAN MARKETS BY —  
STERLING FOUNDRY SPECIALTIES LTD. STERLING WORKS, BEDFORD, ENGLAND

Wisconsin



*The Thew Center Drive is simply a new application of old, well proven mechanical principles to a shovel truck. If you will look into this design you can easily understand the reason why of its remarkable performance.*

## *You Will Want to Know About This Shovel Truck*

**E**VERY shovel owner and operator who has seen this new Thew Truck demonstrated has wondered if his eyes were deceiving him. It does things never before expected of a shovel truck—things that mean much to you in increased production and reduced upkeep cost.

It travels faster, farther and easier on level or grade. It is easier to get at all parts to examine or remove them. It will permit closer digging at either end. It can be towed by one motor truck and will not damage pavements.

Don't you want to know more about this greatest shovel improvement in many years?

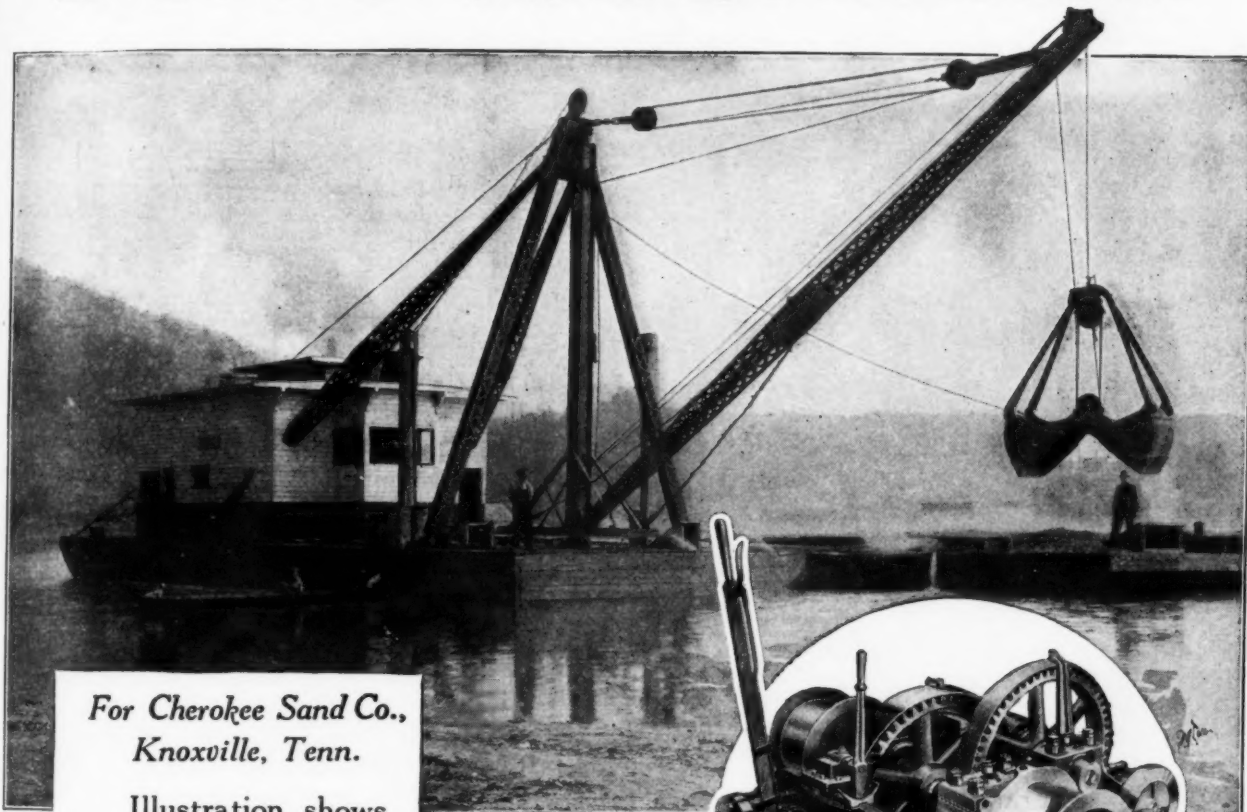
Send for Bulletin No. 201. It's interesting.

THE THEW SHOVEL COMPANY, LORAIN, OHIO



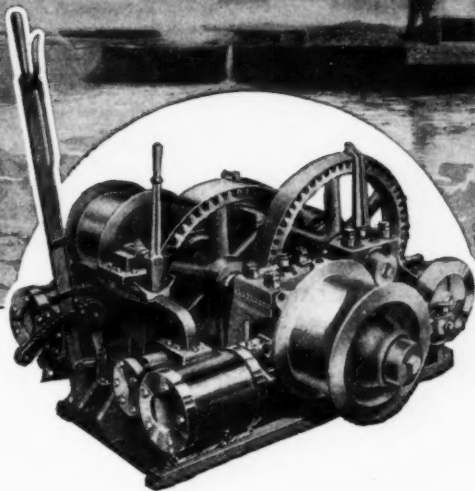


# CLYDES Solve the Problem

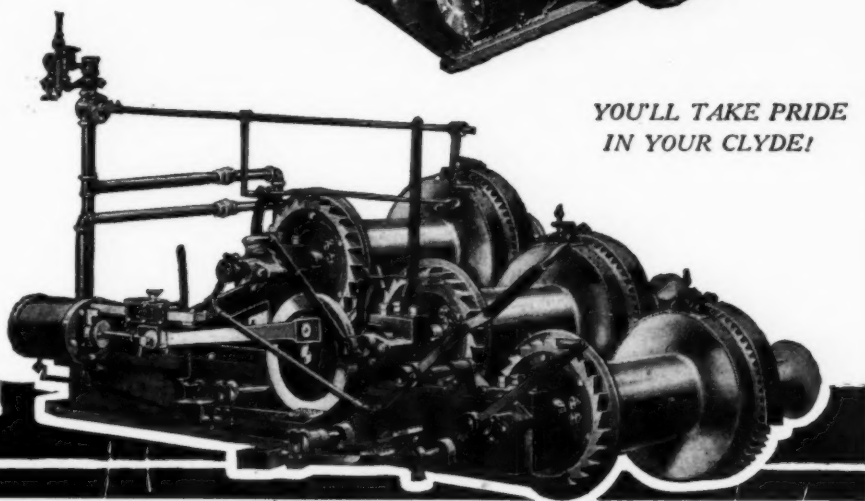


*For Cherokee Sand Co.,  
Knoxville, Tenn.*

Illustration shows their Clyde 15 ton Steel Barge Derrick with 50 foot boom, handling one and one-half yard clam-shell bucket. Operated by three drum Clyde steam hoist without boiler and Clyde independent steam swinging engine.



*YOU'LL TAKE PRIDE  
IN YOUR CLYDE!*



## CLYDE IRON WORKS SALES COMPANY

Sole Distributors for CLYDE IRON WORKS, Duluth, U. S. A.

### Branch Offices and Warehouses:

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309 Magazine St.

NEW YORK CITY  
141-149 Centre St.

PORTLAND  
555 Thurman St.

SEATTLE  
3410 First Ave. So.

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11 So. La Salle St.

CINCINNATI  
1913 Union Central Bldg.

MEMPHIS  
119 Monroe Ave.

JACKSONVILLE  
43-45 W. Forsyth St.

SAN FRANCISCO.  
737 Monadnock Bldg.



## Repair Cost *in* Mixer Service!

Repair part costs per engine per annum of all Le Rois in mixer service averaged only 90 cts. the past four years. This has been accurately figured and covers a time when the greatest number of mixers were used—many of which were Le Roi powered.

Contractors know that such uncommonly low upkeep cost can only be achieved by an engine that takes "time-out" less frequently, that is carefully and soundly built, that stays active on the job long after the ordinary power unit grows feeble, and that is, above all, vigorously "power-full." The Le Roi supplies such ample and dependable power, and does so more economically, as is evidenced by its performance in this field.

Besides concrete mixers, Le Roi Engines are giving economical and dependable service on portable saw rigs, industrial tractors and locomotives, portable conveyors, portable wagon loaders, air compressors, hoists, centrifugal and force pumps, and other power operated machinery.

Even though Le Roi Engines are made in three sizes with a power range of 3 to 15 H.P., 85 percent of the parts are interchangeable.

LE ROI COMPANY, MILWAUKEE

# LE ROI ENGINES

**for dependable power!**

## Western Air Dump Cars Ideal For Waste Haulage



"View at Plant of Algoma Steel Corporation showing method of loading Western Air Dump Cars with slag."

**T**HE use of Western Air Dump Cars solves the problem of economical waste-haulage at industrial plants.

The picture shows how Western 30-yard cars are loaded with cupola slag and other waste at the plant of the Algoma Steel Corporation.

Their great carrying capacity, instantaneous dumping, and low cost of operation and up-keep, ideally adapt Western Cars to the needs of industry as well as to steam shovel excavation.

We build a 45-yard car especially for the handling of such bulky material as coal, cinders, slag, etc. It is readily convertible into a standard 30-yard car when needed for hauling heavy material.

Our special catalog S-55 tells how various industries are handling their waste products. Send for one. Also for our new Dump Car Catalog S-61.



**Western**

*That's Why*

## Western Wheeled Scraper Company

Founded 1877

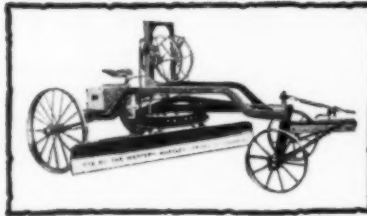
*Earth and Stone Handling Equipment*

**AURORA, ILLINOIS**

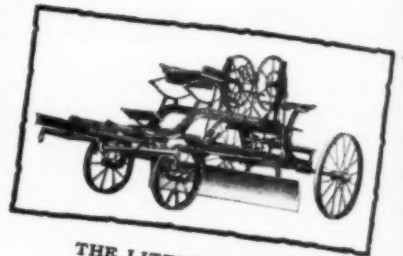




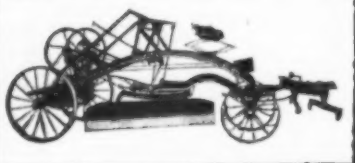
**THE WESTERN MIDGET GRADER**  
Weight: 1000 pounds  
Blade Length: 5 or 6 feet



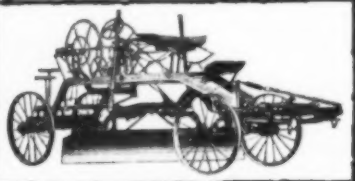
**WESTERN PATROL GRADERS**  
Weight of No. 1—1400 pounds  
Blade Length: 8 feet  
Weight of No. 2: 1000 pounds  
Blade Length: 8 feet



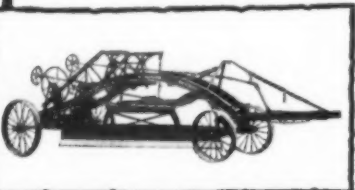
**THE LITTLE WESTERN GRADER**  
Weight: 1450 pounds  
Blade Length: 6 feet



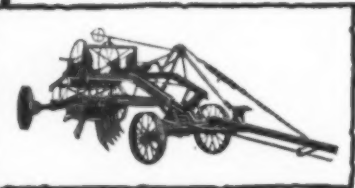
**THE AUSTIN STANDARD GRADER**  
Weight: 2500 pounds  
Blade Length: 7 feet



**THE AURORA STANDARD AND SPECIAL GRADERS**  
Weight of Standard: 2925 pounds.  
Blade Length: 8 feet  
Weight of Special: 3300 pounds.  
Blade Length: 7 or 8 feet



**THE AUSTIN MAMMOTH JUNIOR AND SENIOR GRADERS**  
Weight of Junior: 6750 pounds.  
Blade Length: 10 feet  
Weight of Senior: 7600 pounds.  
Blade Length: 12 feet



**THE WESTERN No. 14 SCARIFIER**  
Weight: 11,500 pounds

## A-W GRADERS

Below are mentioned, the four things that are the best possible advance guarantee of satisfactory service from any piece of road machinery. Let us see how A-W Graders meet the test.

### SCIENTIFIC DESIGN?

The first Austin and Western graders were made over 40 years ago. In design and construction they are not only scientific, but above all things thoroughly practical, because they embody all the worth-while features that these years of experience have developed, and no untried theories that have not stood the test of time.

### RUGGEDNESS?

The second Western grader, made and sold in 1879, is still in active service.

### QUANTITY PRODUCTION?

Thousands of Austin and Western graders of all sizes are in daily use in practically every country in the world.

### A COMPLETE LINE?

A-W graders range in weight from 1,000 to 11,500 pounds; and in blade length, from 5 feet to 12 feet.

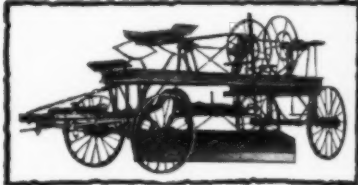
Whether your work be the construction of a new road through the roughest kind of country; the efficient, economical maintenance of an earth or gravel road; or "just grading"; you will find on this page a model as good as made-to-order for you. General Catalog No. 24 tells all about these graders—Write for a copy.

**The Austin-Western Road Machinery Co.**

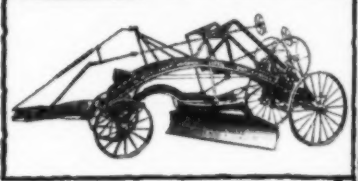
CHICAGO

::

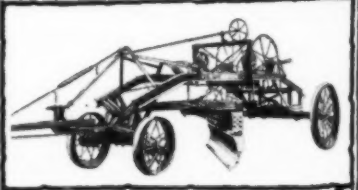
ILLINOIS



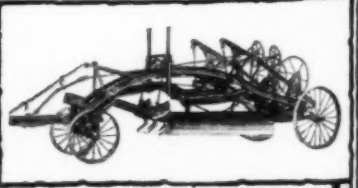
**THE WESTERN STANDARD AND SPECIAL GRADERS**  
Weight of Standard: 2675 pounds.  
Blade Length: 7 feet  
Weight of Special: 2900 pounds.  
Blade Length: 7 feet



**THE AUSTIN GIANT GRADER**  
Weight: 4150 pounds  
Blade Length: 8 feet



**THE WESTERN No. 20 GRADER**  
Weight: 11,500 pounds  
Blade Length: 12 feet



**THE AUSTIN JUNIOR AND SENIOR RIP-SNORTERS**  
Weight of Junior: 5000 pounds.  
Blade Length: 8 feet  
Weight of Senior: 9300 pounds.  
Blade Length: 9 feet

## Contracting with Barber-Greene

This book, showing a number of the new uses to which Barber-Greene are being put, will be sent upon request.



1 Batching and loading gravel on a concrete road job.

2 Handling loosened sub-grade material.

3 Loading on a building excavating job.



# Doing 20 different jobs for contractors

The rugged efficiency of Barber-Greene is illustrated by the many exceptional and tough jobs to which they are put—in addition to their regular job of handling and batching aggregates for road work.

On a large building excavating job, in San Francisco, a model 42 Barber-Greene Bucket Loader stepped right into the shoes of a steam shovel. The job was no snap. The ground was composed of wet, stiff sand that had to be broken off its bank with bars and allowed to cave in on the nose of the Barber-Greene. The business end of the machine was almost completely buried at times.

In spite of those difficulties the Barber-Greene was able to dig and load fast enough to fill a five-ton truck in two and one-half minutes and a two-ton truck in one.

This model Barber-Greene has practically become the standard for material loading on road

jobs. "We would not go back to the grief of hand labor even if it could show the same low costs," is a common expression among Barber-Greene owners.

An increasing number of contractors are pushing their Barber-Greene into more difficult lines of work, similar to the job described above. Loading scarified macadam and cutting grade are now becoming ordinary tasks for Barber-Greene. Pretty stiff jobs, these, but the patented Barber-Greene disc feed walks through them and leaves a spic and span grade behind it. In the new Barber-Greene booklet, *Contracting with Barber-Greene*, twenty different uses to which Barber-Greene are being put, are shown. In addition, there are the more conspicuous of last year's developments in material handling layouts.

As this booklet will prove of unusual interest and value to contractors, it will be sent to all those requesting it.

BARBER-GREENE COMPANY—Representatives

in 50 cities— 530 W. Park Ave., Aurora, Illinois

# BARBER

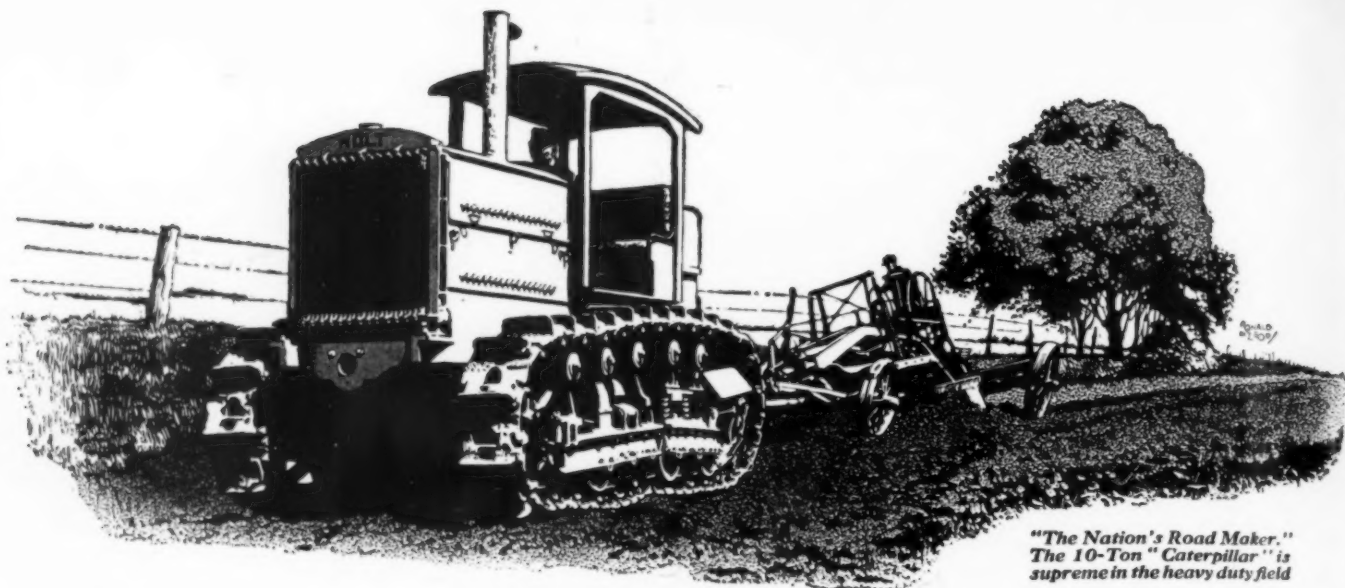
# GREENE

Portable Belt Conveyors

Self Feeding Bucket Loaders

Coal Loaders . . . . Automatic Ditch Diggers . . . Coal Feeders





*"The Nation's Road Maker."  
The 10-Ton "Caterpillar" is  
supreme in the heavy duty field*

# The Nation's Road Maker

Public officials and contractors, whose business is the construction of good roads and other public works, are keenly alive to the importance of new machines and better methods.

For over fifteen years the "Caterpillar" has been the pioneer in the great road building industry.

By furnishing the most economical

and efficient power for the building and maintenance of thousands of miles of highways, the "Caterpillar" Tractor is well termed "The Nation's Road Maker." It has been the choice of many experienced officials and successful contractors. In pulling road-making equipment of all kinds the "Caterpillar" is *supreme* simply because it does the most work at the least cost.

The New 5-Ton sets an entirely new standard in the medium power field. Long tested in the field by Holt engineers and experienced users, it is ready for your road making needs. With its efficient motor and its track-flexibility it has a big reserve power and maximum traction under all conditions.

The 10-Ton has a remarkable record of real results in the whole field of road making. It has correct flexibility, correct balance, and correct distribution of weight, giving

it maximum tractive efficiency. Wherever the conditions are the most difficult, there you will find the 10-Ton "Caterpillar" doing the job successfully.

The improved 2-Ton has no rival. It is a sturdy, well-built, small tractor. With its fifteen drawbar horsepower, 4700 pounds of weight, and adequate range of speeds, it has proved to be invaluable in patrol maintenance and road operations of many kinds where speed and economy are essential.

"The Nation's Road Maker" is the most practical investment that can be made of road funds; a real public servant. There's a right size for every job. Each size incorporates advanced engineering and proven principles of construction, backed by Holt basic patents. With 61% of the tractor's weight heat-treated in

our own plant, by our own special processes, uniform and lasting quality are definitely assured. If you are already using "Caterpillars" you will be interested in the new features. If you are using some other machine or method, or desire any information as to "Caterpillar" efficiency, we invite correspondence.

*There is but one "Caterpillar"—Holt builds it*

**THE HOLT MANUFACTURING COMPANY, Inc.**  
Peoria, Illinois

Stockton, California

Export Division: 250 W. 54th Street, New York

**CATERPILLAR**  
REG. U.S. PAT. OFF.



# Successful Methods

Construction • Road Making • Engineering • Industrial • Mining

U. S. Engineers  
School Library  
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APR - 4 1926  
Washington  
Barracks, D. C.



Vol. 7

March 1925

No. 3



# The Cost of ONE small ACCIDENT

may pay for all the Wire Rope a shovel, crane or derrick can use in Forty years.

**Does it pay to play your luck  
in a gamble with human life?**

Many rope accidents are caused from unknowingly using the wrong grade. For this reason, as a protection against this, every grade of

## WILLIAMSPORT WIRE ROPE

is marked in plain English by a Telfax Tape woven into and throughout its length.

No other make of Wire Rope is marked in such certain and definite way.

Until WilliamSPORT gave Wire Rope users this protection, there was some excuse for getting the wrong grade of rope into service.

Today, there is **NO EXCUSE** for any user making this mistake.

The good name of any maker is not a guarantee against mistakes. The "Telfax Tape" system of protection is the only sure protection.

It can only be found in "WilliamSPORT."

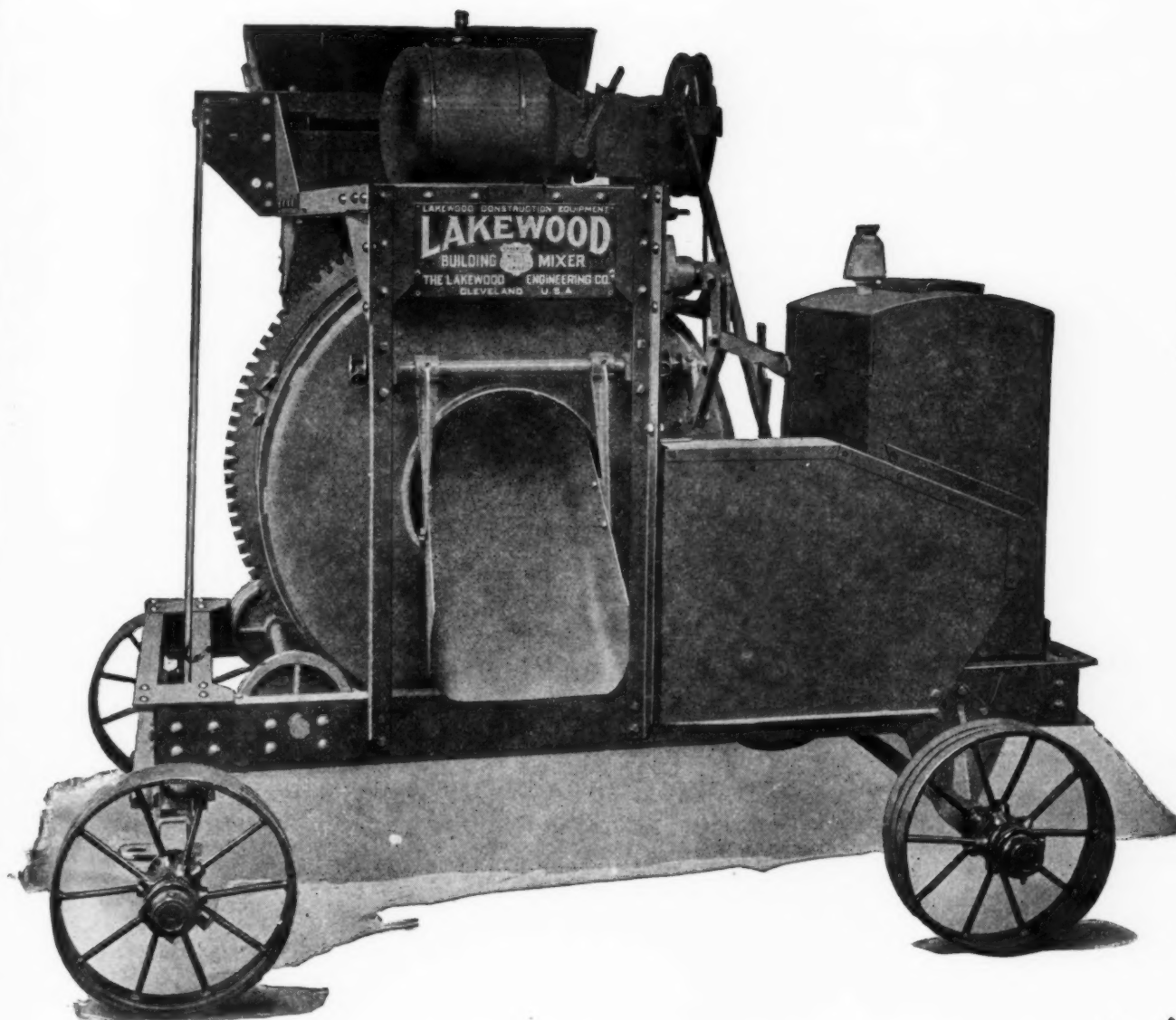
If you haven't had your accident yet from using the wrong grade of rope—Knock on Wood.

### WILLIAMSPORT WIRE ROPE COMPANY

Main Office and Works:  
WilliamSPORT, Pa.

Gen'l Sales Office  
Peoples Gas Bldg., Chicago, Ill.

# THE LAKEWOOD 207-S



A sturdier—faster—more compact one bag mixer at a price no greater than others—it is money in your pocket to investigate!

*Mail the Coupon!*

**THE LAKEWOOD ENGINEERING CO.**

CLEVELAND, OHIO

LAKEWOOD ENGINEERING CO.  
Cleveland, Ohio.

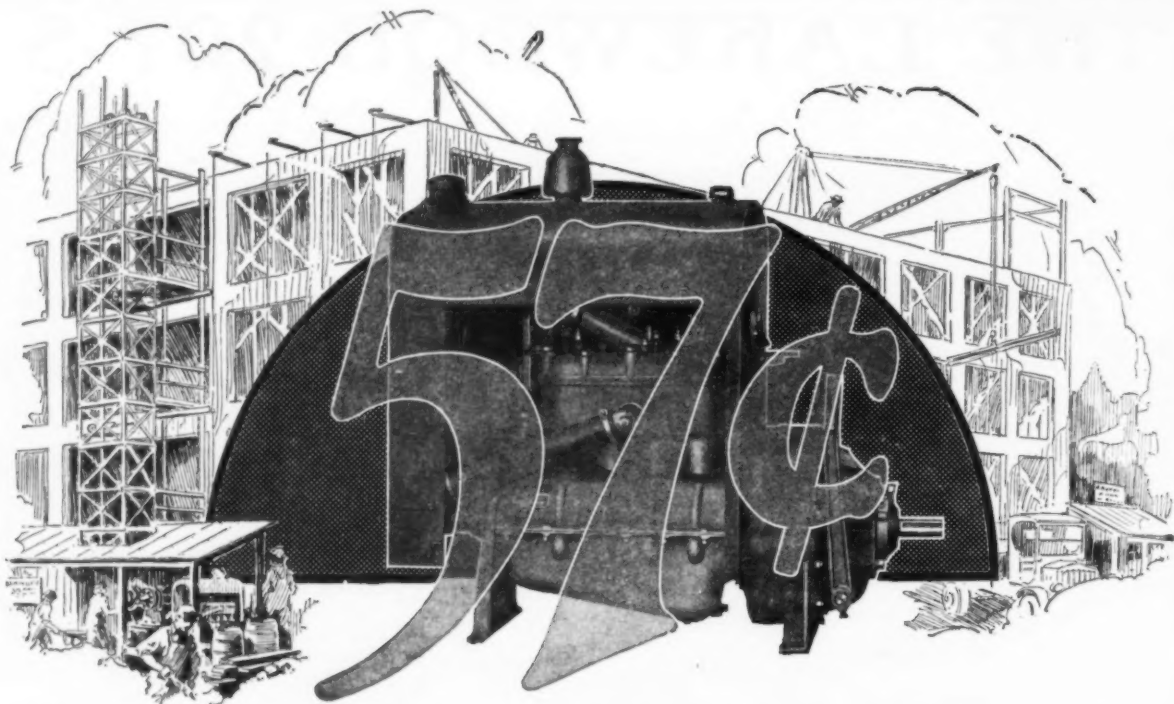
I want complete information on the Lakewood 207-S—send me all the printed matter on the subject—at once!

Name .....

Address .....

5





## Le Roi Repair Cost on Hoists!

Le Roi Engines' claim to dependable power is an earned one. It is backed by performance. Think of it—all Le Roi Engines on hoists showed an average repair cost of only 57 cents an engine per year. This figure covers the past four years when construction equipment more than ever had to perform dependably and constantly to safe-guard the contractor's profits.

An engine that shows such a surprisingly low up-keep cost is reliable—it is not guilty of costly shutdowns. And likewise, does not throw a husky crew into idleness. The Le Roi does this exacting service because it is built right—made with all the painstaking care and precision known to engine

builders. Every Le Roi that leaves the plant successfully passes all tests and inspections and is fit for duty.

Even though Le Roi Engines are made in three sizes ranging from 3 to 15 H.P., 85 per cent of the parts are interchangeable.

**Le Roi Company Milwaukee**

# LE ROI ENGINES

**for dependable power!**

Standardized  
Small Tool  
Equipment  
Saves  
Maintenance  
Costs.

# Sterlings' Most Economical

C. H. Everitt  
Buffalo, N. Y.

Gentlemen:

Replying to your letter of the 9th inst., I am pleased to advise you that I have been using the Sterling Wheelbarrows and carts for a number of years, due to the fact that they have given entire satisfaction under the most severe use.

I have experimented with several makes of Wheelbarrows in the past few years, but find the Sterling the most economical as to interchangeability of parts, and self lubricating wheels, and general sturdy construction has convinced me that there is no better equipment in this line on the market and I now have between sixty and seventy five in use at all times.

Very truly yours,

C. H. Everitt



Bulletin 39 tells the story  
Ask for it

They Balance Well,  
Wheel Easy and  
Please the Wheeler.  
All Parts of the  
Sterling Barrow are  
Interchangeable,  
Simple and Durable.

## STERLING WHEELBARROW COMPANY

STERLING ON A WHEELBARROW MEANS MORE THAN STERLING ON SILVER

Milwaukee

MANUFACTURED FOR THE EUROPEAN MARKETS BY:  
STERLING FOUNDRY SPECIALTIES LTD. STERLING WORKS, BEDFORD, ENGLAND

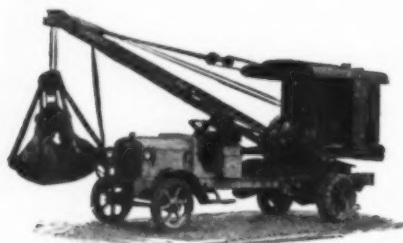
Wisconsin



# 15 UNIVERSALS Busy All Winter within

7  
Miles  
of

Cleveland's  
Public  
Square



A 5-ton capacity locomotive crane  
Full circle swing—Rate  $5\frac{1}{2}$  R.P.M.  
44-H.P. Waukesha Gasoline Engine  
Mount it on any 5-ton motor truck  
(Pat'd) Jacks and Stirrups supplied to relieve  
rear truck springs of operating loads  
Can travel with load suspended  
No outriggers required.  
Transferable readily to crawler and other  
mountings  
Operating weight equal to 5-ton load plus body  
allowance  
Operating speed to equal or outhandle many  
 $\frac{3}{4}$ -yd. cranes.

Not in Cleveland alone but in scores of other cities from New York to Los Angeles Universals are busy winter and summer. You even find them in towns like East Freetown, Mass., with only 300 people.

For 5 years now Universals have been making good on almost every conceivable kind of job. The first one built, shows hardly a bit of wear today and the owner expects at least ten years longer economical service from it.

This long crane life—the unbroken chain of satisfactory performance—the reputation for unquestioned reliability—the low operating and maintenance cost, and faster operating speed meaning a bigger day's and month's work, are all Universal attributes backed by design and sturdiness of construction not duplicated in cranes of less than twice Universal rated capacities. Compare power plants, shafts, gears, bearings, clutch and brake areas but, above all, earning power, and you readily understand why 25% of Universal sales are repeat orders.

*Wire or write for Bulletin No. 28-G*

THE UNIVERSAL CRANE COMPANY, 924 Swetland Bldg., Cleveland, Ohio

Branch Offices: New York—Chicago—Boston—Representatives Everywhere







Picking Hard Clay in Trench with 156-H  
Trench Diggers Operated from I-R 5x5  
Portable Compressor on Ford Truck

### Three Speedy Trench Tools

These machines will earn money for you by speeding up your trench work.

The Paving Breaker enables one man to open up more pavement per day than can be done by twelve to fifteen men working with hand sledges.

The Trench Digger picks clay and hard dirt five times faster than is possible with the ordinary hand pick.

The Backfill Tamper strikes hard snappy blows ten times faster than a man can tamp by hand and does a better job.

The 5 x 5 portable compressor shown above will operate two Paving Breakers; or two Trench Diggers; or three Backfill Tampers. Ask for details on the savings made with these portable compressors and tools. There are six sizes of I-R portable compressors.

CC-25  
Paving  
Breaker

156-H  
Trench  
Digger

22-SR  
Backfill  
Tamper

#### INGERSOLL-RAND COMPANY

11 Broadway,

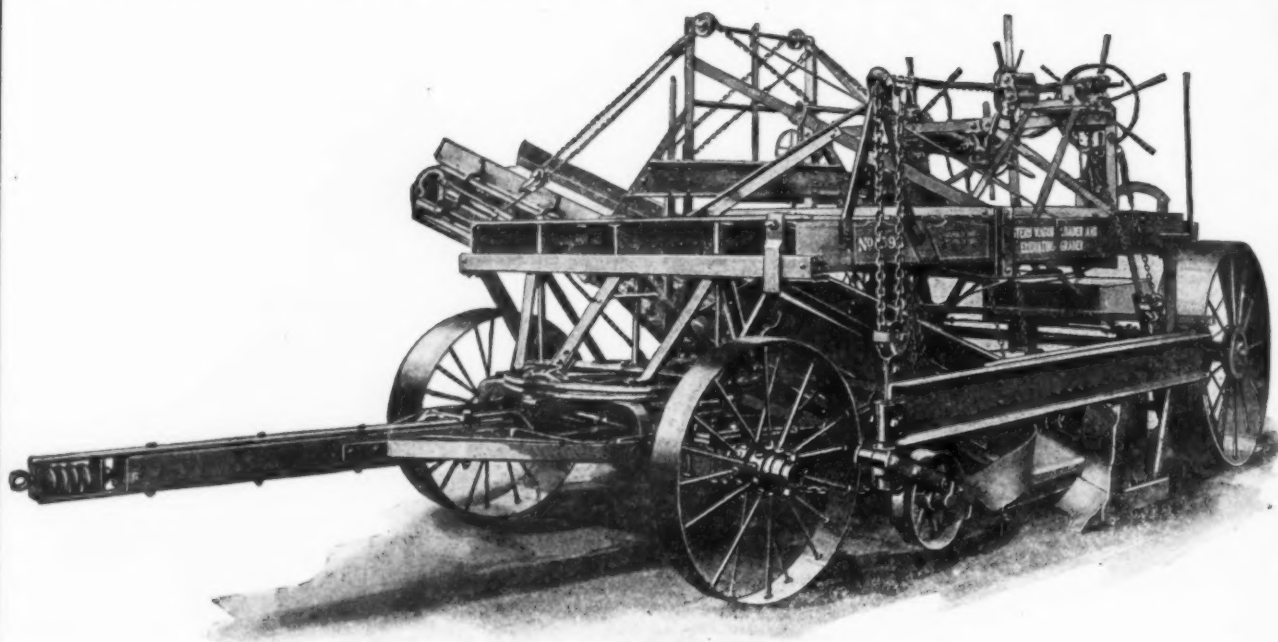
New York City

Offices in principal cities the world over.

For Canada Refer Canadian Ingersoll-Rand Co., Limited  
260 St. James Street, Montreal, Quebec.

# Ingersoll-Rand

# Here's the 1925 Model Western



Many contractors have visited the factory to see this new tractor grader and they are enthusiastic.

**T**HREE things an elevating grader must have for big yardage and tractor operation.

## Great Strength

## Staying Power

## Ease of Operation

We have just issued a new catalog, full of interest and value and picturing and describing many improved 1925 machines. Where shall we send your copy?

The 1925 Model Western Elevating Grader was strong before; but heavy tractor operation is severe and we have gone to **8-inch channels and I-beams**.

It had great staying power before; but the new construction adds to its life and efficiency.

To make field replacement easy, we now build a machine with removable brass bearings which can be slipped in and out along the rear axle.

The bevel gears are now held in correct mesh at all times. To accomplish this a heavy duty thrust collar has been added to the rear axle to take the end thrust of the bevel gears.

Your old machines need replacing this year. Start now to investigate the claims of this 1925 Model Western Elevating Grader with its new elevator, increased strength, simplified control and low cost of maintenance.



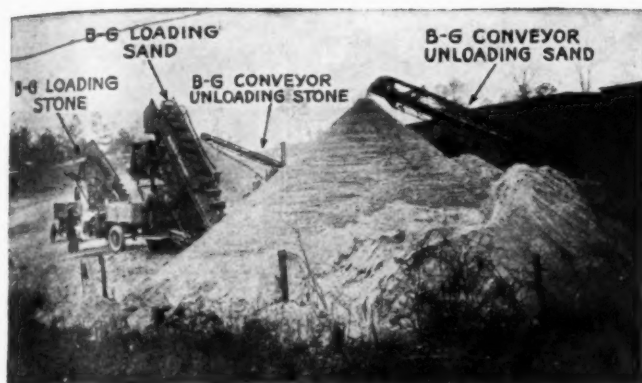
**Western**

*That's Why*

## Western Wheeled Scraper Company

Founded 1877

*Earth and Stone Handling Equipment*  
**AURORA, ILLINOIS**



1—The Southern States Transportation Company's Barber-Greene outfit. It can be moved from job to job, with practically no waste of time for setting up. As soon as it arrives it is ready to go to work.



2—The B-G, Style N, Conveyor with its nose buried under the unloading switch. It was used to unload and stock-pile materials from hopper-bottomed cars.



3—Another B-G Conveyor handling one of the nastiest jobs on concrete paving work—storing cement.

# Driving Mixers to Bigger Yardages

*Barber-Greenes speed up material handling and eliminate "material waits"*

The Southern States Transportation Company of Warrior, Alabama, contracted to furnish batched materials for a 17½ mile stretch on the Montgomery-Birmingham Highway. They wanted a material handling outfit that would keep the mixer working to capacity all of the time. In addition, they wanted one that would show low costs on the work.

### *Low initial and low per-load cost*

After studying various methods of material handling they decided to use Barber-Greene equipment for all their material handling. Barber-Greene Style N Conveyors unload from beneath hopper-bottomed cars and stock-pile the materials. Demurrage charges are practically eliminated. The stock piles are reclaimed, batched and loaded by Barber-Greene Self-Feeding Bucket Loaders.

The efficiency of this outfit is demonstrated by

BARBER-GREENE COMPANY—Representatives

the fact that during the first twelve working days one mile of 9-6-9 concrete pavement was laid.

### *Pushing into other lines of loading*

In addition, Barber-Greene Self-Feeding Bucket Loaders are constantly being pushed into more difficult lines of loading work, such as handling scarified macadam, excavating, cutting sub-grade and similar tough jobs.

### *Send for this booklet*

*Contracting with Barber-Greene* contains a lot of last minute news on how and why Barber-Greene equipment is saving money, time and worry for contractors. A number of new and interesting Barber-Greene paving and contracting layouts are shown as well as some of the newer jobs to which Barber-Greene are being introduced. *Send for a copy.*

in 50 cities—530 W. Park Ave., Aurora, Illinois

# BARBER

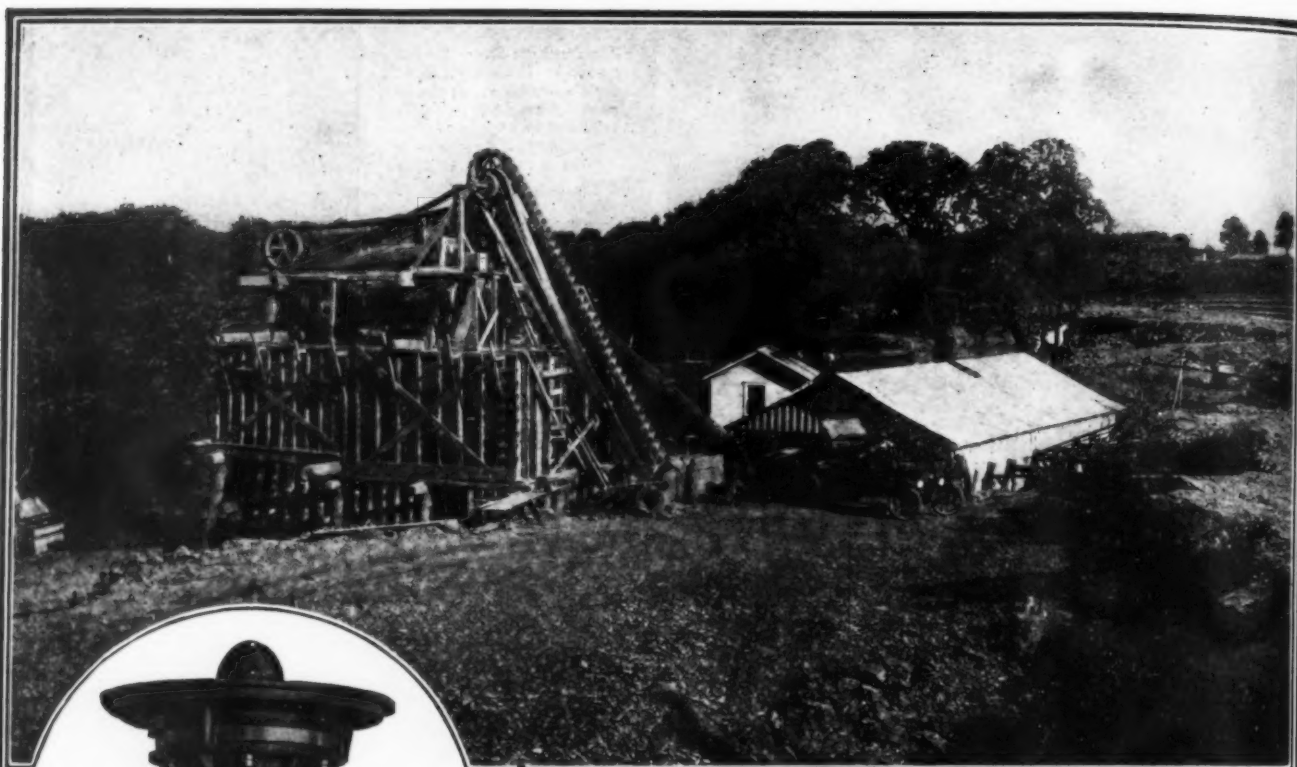
# GREENE

Portable Belt Conveyors

Self Feeding Bucket Loaders

Coal Loaders . . . . Automatic Ditch Diggers . . . . Coal Feeders





## SATISFACTORY SERVICE

**T**HAT, in two words, has been the history of the Austin Gyratory Crusher. Designed, as it was, with the two fundamental requirements—strength and capacity—thoroughly in mind and by men whose experience and engineering ability guaranteed results, it has occupied a position of leadership in

### EFFICIENCY—RELIABILITY—ECONOMY

Many refinements have also been incorporated in the Austin design which make adjustments easier, facilitate the replacement of worn parts and enable the user to maintain the machine in the highest state of efficiency for many years. It is virtually impossible to place any limit on the life of an Austin Crusher. All wearing parts are easily renewable and breakages are rare.

*A special catalog explains those qualities which are distinctively Austin. Your copy will be forwarded immediately upon receipt of the attached coupon.*



Please send me a Catalogue  
describing the Austin  
Gyratory Crusher

## AUSTIN MANUFACTURING CO.

400 NORTH MICHIGAN AVENUE :: CHICAGO

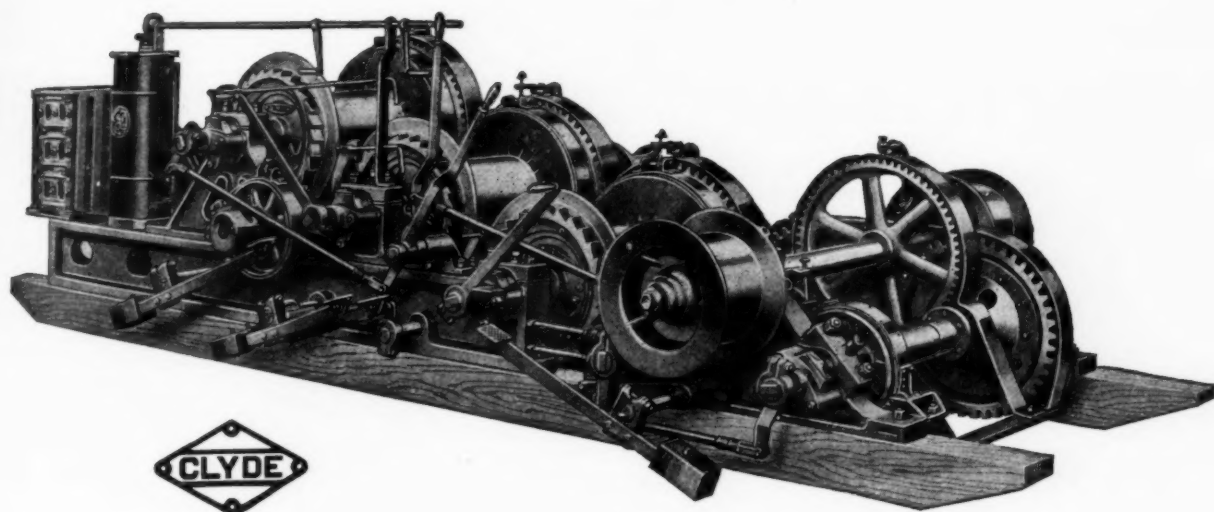
# CLYDE

## Standard Hoists and Derricks

### For the General Contractor

#### STEAM · ELECTRIC · GASOLINE · BELT

Clyde Electric Hoists are being used exclusively by Booth and Flynn for the construction of the vehicular tunnel under the Hudson River between New York and Jersey City.



Manufactured in Sizes and Types to Meet Any Construction Requirement.

*You'll Take Pride in Your Clyde!*

## CLYDE IRON WORKS SALES COMPANY

Sole Distributors for CLYDE IRON WORKS, Duluth, U. S. A.

*Stocks Carried in the following Warehouses:*

NEW ORLEANS  
309 Magazine St.

NEW YORK CITY  
E. 136 St. and Locust Ave.

PORTLAND  
555 Thurman St.

SEATTLE  
3410 First Ave. So.

*Branch Offices:*

CHICAGO  
11 So. La Salle St.

CINCINNATI  
1913 Union Central Bldg.

MEMPHIS  
119 Monroe Ave.

JACKSONVILLE  
43-45 W. Forsyth St.

SAN FRANCISCO.  
737 Monadnock Bldg.



## Motorizing a 750,000 yard job

In rebuilding and enlarging Marquette Park in Chicago, providing one of the finest municipal golf courses in the country, the plans involved the excavating and moving of some 750,000 cubic yards of earth. The contractors, J. J. McCaughey Company, of Chicago, one of the oldest and largest firms in the west, had had much experience with tractors of various kinds and sizes, and determined to thoroughly test out on this project, the real economies of completely motorized outfits comprising tractors pulling elevating graders and trains of dump wagons.

The use of other equipment was followed by the purchase of two 10-Ton Holt "Caterpillar" tractors in the fall of 1923. The success achieved enabled the McCaughey Company to expand their program in the spring of 1924, when they purchased four additional 10-Ton "Caterpillars." During the wet spring and summer seasons these tractors were constantly called upon to handle the roughest and most difficult jobs on the entire project. The earth here, known as "giant clay," was often wet and rubber-like, coming from the elevator in great huge slabs—making the conditions very severe. The 10-Ton "Caterpillars" pulled the largest elevating graders, taking the deepest cuts, hauling each two 5 to 6 yard dump wagons over the roughest ground, on steep grades and onto the fills.

Other equipment on this same project was invariably assigned to the easier work—but was not called upon, nor able to, duplicate the difficult jobs so successfully handled by the Holt Tractors. Frequently the "Caterpillars" worked on both day and night schedules.

The work done by the McCaughey Company with "Caterpillars" has been a revelation to contractors, engineers and public officials not only because of the consistent and economical performance of the tractors, but also because of the large scale of the operations carried on. The economy and practical value of the "Caterpillar" method has again been emphatically proved, and notwithstanding the extremely difficult character of the soil and the continued wet season, the contractors exceeded their original time estimates.

Whatever the job may be, or wherever located, the "Caterpillar" will supply the power at the lowest cost, and will produce real results where no other form of power is possible or practical. The 2-Ton for light jobs; the New 5-Ton for medium power needs, the 10-Ton for heavy duty, cover the entire range of requirements. We invite inquiries from all who are interested in better and cheaper power.

**"The Nation's Road Maker"**

*There is but one "Caterpillar"—Holt builds it*

**The Holt Manufacturing Company, Inc.**

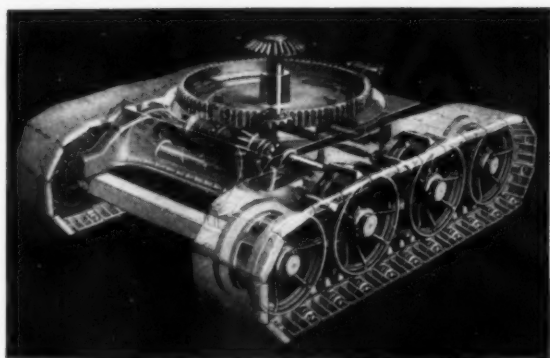
Peoria, Illinois

Stockton, Calif.

Export Division—250 W. 54th Street, New York

**CATERPILLAR**  
REG. U.S. PAT. OFF.





*This is the new Center Drive Truck that is making such remarkable performance records. Note the simple direct drive to 4 large wheels at center of truck. That explains it. It is a worthy mounting for the shovel that has always kept in the lead of shovel developments. Send for Bulletin 201. You will find it interesting.*

## Shovel Users—Read This

This was a tough job—as tough as any you are ever likely to tackle. Read how it was licked with a Thew on the new Center Drive Truck.

Gentlemen:

The new type "O" caterpillar mounted shovel shipped us was placed in operation within forty-eight hours after its arrival and the photographs sent you will give you some idea of the job this shovel was started on—the trench for drainage purposes along our clay and shale bank. In digging same the shovel was compelled to travel in mud and clay up to and above the axles and at times the tread was completely filled with stiff, partly frozen fire clay and shale and at the same time was digging through twelve inches of frost on the top.

We inquired from our Operating Department if they were trying to break the shovel and our superintendent replied "after we finish the present job we will know if the shovel has any defects."

We are pleased to advise you that after giving your shovel, particularly the tread, the hardest kind of test, we are entirely satisfied with our purchase and can recommend your new caterpillar mounting to anyone requiring the service of such equipment.

Yours very truly,

THE MAPLETON CLAY PRODUCTS CO.  
E. J. Schario, Pres.

If you want a shovel that is built from the ground up for tough jobs, get the facts about Thew before you buy.

THE THEW SHOVEL COMPANY, LORAIN, OHIO



# KOEHRING



## There Always Have Been Cheaper Mixers than the Koehring

**B**UT it's the last thousand dollars *put into* a mixer that makes the great big difference in service-life and on-the-job reliability. Koehring paver leadership is the best proof of the extra value that has always been built into the Koehring—and always will be!

Koehring experience and stubbornness for quality—Koehring heavy duty construction—are more than worth their cost on the job, season after season.

We know that the money you pay for the heavier duty construction that goes into the Koehring is the most profitable mixer investment you can make!

**Paver Capacities**—7, 13, 21 cu. ft. of Mixed Concrete. Auxiliary equipment and choice of power to suit individual needs.

**Construction Mixers**—10, 14, 21, 28 cu. ft. of Mixed Concrete. Steam, gasoline or electric power. Mounted on trucks or skids. Rubber tired wheels optional. 28-S on skids only.

**Dandie Light Mixer**—7 cu. ft. Mixed Concrete. Two or four cylinder gasoline engine. Power charging skip, or low charging hopper and platform. Rubber tired steel disc wheels.

Write for  
Paver Bulletin  
No. P-17

### KOEHRING COMPANY MILWAUKEE WISCONSIN

PAVERS, MIXERS—GASOLINE CRANES—DRAGLINES AND SHOVELS

Sales and Service Warehouses in principal cities

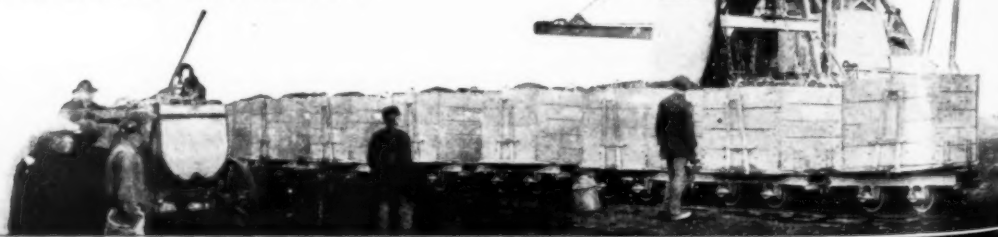
Foreign Department, Room 1370, 50 Church St., New York City;

Canada, Koehring Company of Canada, Ltd., 105 Front Street, East, Toronto, Ontario

Mexico, F. S. Lapum, Cinco De Mayo 21, Mexico, D. F.



A2620-I





# Successful Methods

Construction • Road Making • Engineering • Industrial • Mining

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Washington  
Barracks, D. C.



Vol. 7

April 1925

No. 4





## Austin Leaning Wheel Graders

The time-tested features that have made Austin Graders the choice of experienced operators for over 40 years will all be found on the Leaning Wheel models. In addition, they are distinguished from all other Leaning Wheel graders by several improvements of great practical value. The Telescopic Rear Axle, Timken Tapered Roller Bearings and Alemite High Pressure Lubricating System are exclusive features whose value will be admitted by all impartial authorities.

The advantages of the telescopic axle are obvious. It is never in the way as a long, one-piece axle is very apt to be, and when fully telescoped has the further advantage of being much stronger than any long axle can hope to be.

Timken Tapered Roller Bearings are dust-tight and have many mechanical advantages over all other types. No other bearing is designed to stand the variable loads, or pressure, to which all grader wheels are subjected, and no other type can be taken up for wear instead of replaced.

The Alemite High Pressure Lubricating System is standard equipment on more than 250 automobiles, trucks and tractors. Its chief advantage is the fact that lubricant is forced into all bearings under a pressure of several hundred pounds to the inch, thus reaching every part of the wearing surface, and at the same time forcing out all foreign matter.

The Telescopic Rear Axle, Timken Bearings and Alemite Lubricating System are but three of the things that contribute to Austin superiority.

*Why take less in a leaning wheel machine?*

Mail coupon today for a copy of the latest Austin Leaning Wheel Grader Catalog.



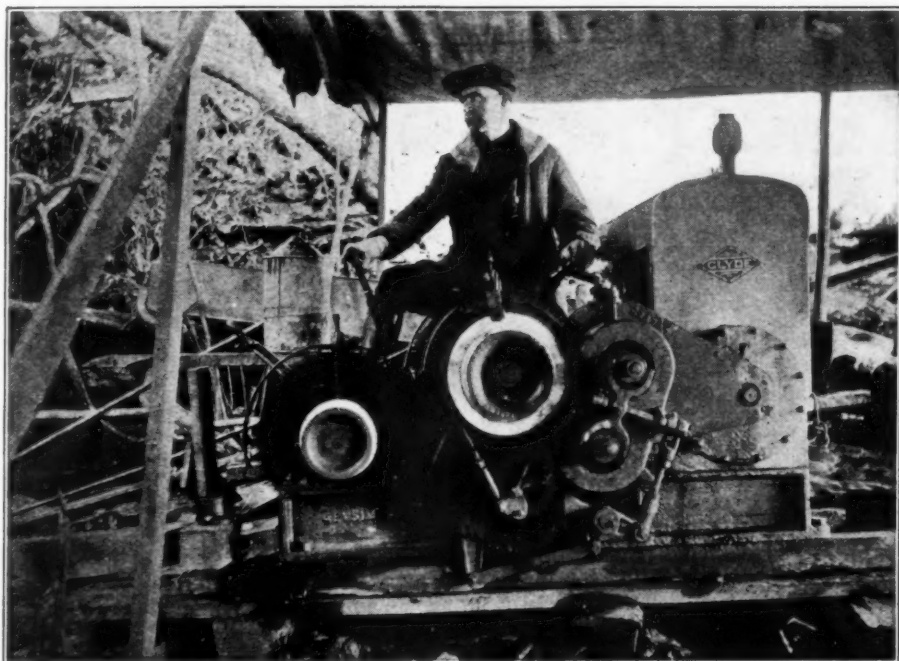
Please send me a copy of the Austin Leaning Wheel Grader Catalog.

**THE AUSTIN-WESTERN  
ROAD MACHINERY CO.**  
CHICAGO

# CLYDE

## Standard Hoists and Derricks For the General Contractor

### STEAM · ELECTRIC · GASOLINE · BELT



## TWO WEEKS CONTINUOUS OPERATION!

The Clyde Company received the above picture and the letter herewith which was written February 18, and sent in voluntarily by the writer. It is self-explanatory:—

"I have been operating a Clyde Hoist at Sand Cave, Cave City, Ky., helping to get Floyd Collins out of the cave. There were people, lots of them, that came to me every day while I was there and spoke to me and none failed to mention the true, smooth efficiency with which the engine ran. It has been there over two weeks now running day and night, only stopping a few moments in each 24 hours for a test to determine if Collins was living and also the progress we were making and how near him we were getting.

"Your hoist was selected out of several others that were sent to this place. It was sent here by the Foster Creighton Company, of Nashville, Tenn., and selected and set up by Tom Smith. I talked to Mr. Smith concerning the hoist this morning when I asked him what he thought of it. He said it was the most complete one he ever saw and added when we are in need of hoisting machinery again, I expect to consult them. Mr. Smith is M. M. for the Ky. Rock Asphalt Co., Kentucky Rock, Ky. I am employed by this Company as Hoisting Engineer.

"If I should ever be called on to recommend one of your hoists, I can safely say they are the best."

You'll Take Pride In Your Clyde!

L. H. CROSS.

## CLYDE IRON WORKS SALES COMPANY

Sole Distributors for CLYDE IRON WORKS, Duluth, Minn.

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NEW YORK CITY  
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CINCINNATI  
1913 Union Central Bldg.

MEMPHIS  
119 Monroe Ave.

JACKSONVILLE, FLA.  
43-45 W. Forsyth St.

SAN FRANCISCO  
737 Monadnock Bldg.



### Will Walk Right Up a 30% Grade

Will Travel 1½ Miles per Hour—Can be Towed by One Motor Truck—Steers in Large or Small Radius Without Stopping—Has More Clearance Underneath—Can Dig Closer at Either End—Will Not Damage Pavements—Has Self-cleaning Treads and Drive Rollers—Has Tread Pins that Need No Lubrication—The Most Durable Truck Ever Built.

**The CENTER DRIVE Does It**

## Come On. Let's Go.

There will be some nice, fat contracts let this year.

You will no doubt be right on the job with both feet to round up your share.

But, in case you need new shovel equipment, are you fully informed as to the right shovel to make your contracts most profitable?

You ought to get the facts about Thew Gas Shovels NOW, or about a Thew Steam if steam is better for your work.

Thews have shown other contractors the short route to bigger profits. For your own sake, Get the Facts. Be ready. Make this your best season.

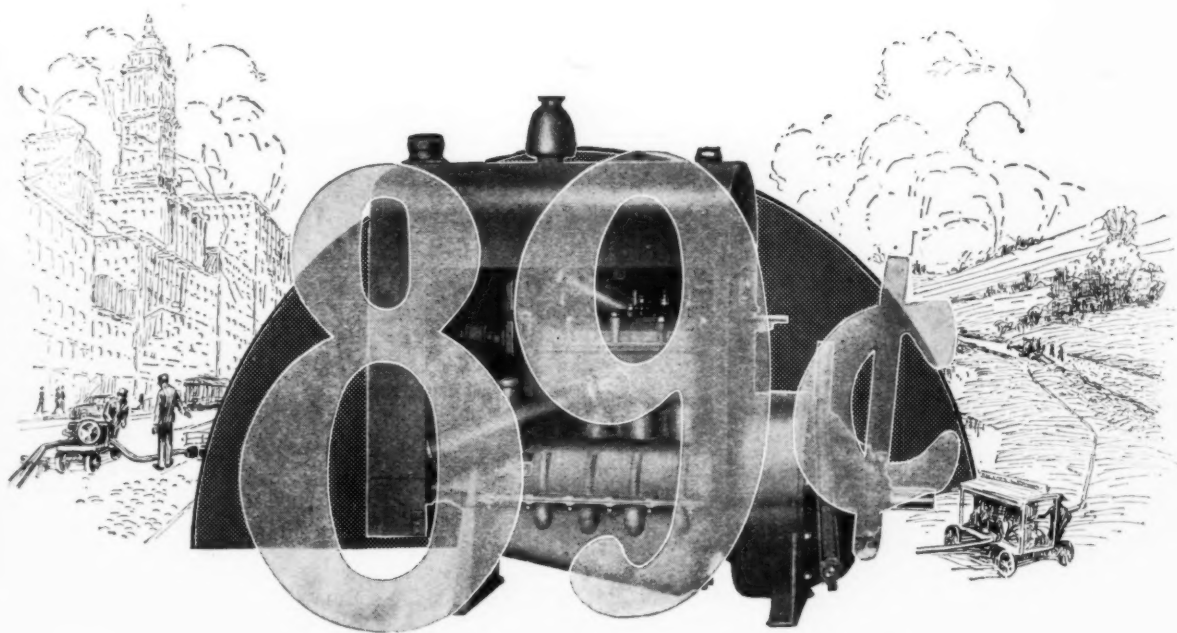
Interesting Thew bulletins are yours for the asking.

THE THEW SHOVEL COMPANY, LORAIN, OHIO

*Thew*  
Power Shovels

 The company name "Thew Power Shovels" is written in a large, stylized font. On either side of the text are small line drawings of Thew shovels. The one on the left is a crawler-mounted shovel, and the one on the right is a truck-mounted shovel.





## Average Repairs on Pumps!

Engine "economy" doesn't stop at the initial investment. It only starts there. Its actual cost—repairs, depreciation, activity on the job, delays, etc.—are measured by years of service.

Le Roi Engines are economical because they are dependable. Think of it—all Le Roi Engines on centrifugal and force pumps showed an average repair cost of only 89c. an engine per year. And this over a period of four years when thousands of Le Roi Engines were used on this kind of equipment.

There is no more convincing evidence of "power economy" than an

engine's ability to stay active on the job. It must be powerful and dependable. Le Roi's astonishing performance in this field is likewise favorably reflected in the many others it now serves.

Although Le Roi Engines are made in three sizes ranging from 3 to 15 H.P., 85 per cent of the parts are interchangeable.

**Le Roi Company, Milwaukee**

# LE ROI ENGINES

**for dependable power!**



1—This Barber-Greene Bucket Loader replaced 12 men at handling stone on a road job for the State of Illinois. Materials were stored in advance.



2—The Barber-Greene which replaced 12 men at handling sand and stone for the Warren Bituminous Paving Co. In 10 hours it loaded 378 loads, of 18 cubic feet each.



3—Showing how efficiently the Barber-Greene operates in conjunction with industrial haulage. It is loading stone to cars at the central mixing plant of the H. A. Hoxie Co., Hudsonville, Mich.



4—Two Barber-Greenes at the central mixing plant of Hans Jensen, St. Charles, Ill., have displaced a shovel gang of 17 men. Monday mornings have invariably found the job under-manned. Now the week is started at top speed.

5—A Barber-Greene beginning a stripping job for Luigi Vallone, Providence, R. I.

## Feed Feed Feed Your Mixer

Feeding stuff into the charging end of a mixer is the best and only way to keep concrete pouring out of the discharge end. The problem is to have a fresh batch ready each time the skip drops—at the lowest possible costs.

Here is where Barber-Greenes come in.

They save the cost and time of shipping, erecting, taking down, and licking trouble on expensive material handling systems. The moment the job is ready the Barber-Greenes are ready.

On a concrete base job for Mr. Jos. F. Burke of Plainfield, New Jersey, two Barber-Greene Loaders, loading into duo-batch trucks from stock piles at road intersections, were instrumental in setting records of 1808, 1516 and 1872 square yards for the first three days of work.

No foolishness there—the Barber-Greenes paid dividends from the start.

In addition, when there is no batching and load-

ing for Barber-Greenes they do not constitute so much idle investment. Contractors are constantly pushing them into other lines of material-handling and loading work such as sub-grading, slab covering, loading scarified macadam and similar tough jobs—at a profit.

There is other versatile Barber-Greene material-handling equipment which helps to lay low "Old Man Overhead." Barber-Greene conveyors unload from cars and stock-pile materials with low costs. And they can handle such dirty, killing jobs as cement storage, either bag or bulk, where men cannot work efficiently.

"Contracting with Barber-Greenes" is the latest Barber-Greene collection of material-handling layouts on road and street paving jobs. It shows the new systems that contractors have developed during 1924. These are bound to be of interest to all contractors, so just mail your request to address below. We'll see that you get a copy.

BARBER-GREENE COMPANY—Representatives

in 50 cities—530 West Park Avenue, Aurora, Ill.

# BARBER

Portable Belt Conveyors

Coal Loaders . . . . . Automatic



# GREENE

Self Feeding Bucket Loaders

Ditch Diggers . . . . . Coal Feeders



# "Men Prefer Sterlings"

McCormack-Combs  
Construction Co.  
St. Louis, Mo.

Bulletin 39 tells  
the story  
Ask for it

Gentlemen:

You asked us why we continually use Sterling Wheelbarrows on all of our jobs.

We used them on the Missouri Pacific Hospital job and the reason we use them is that they last longer than the ordinary wheelbarrow.

The laborers themselves like the wheelbarrow mainly because of the wheel.

Then too, the tray brace which is now of rivet construction is such that absolutely prevents the tray, no matter how heavily loaded, from sagging and dragging on the wheel. The laborers like this very much also.

We have been using Sterling Wheelbarrows for years and as long as they give us the same service as they do now and the men keep asking for them, we will continue to use them.



A Scientifically Designed Front Brace Formed V Shape Holds the Tray in Shape and Strengthens the Frame. It is This Attention to Details Which Makes a Barrow Better and Cheaper in Performance.

## STERLING WHEELBARROW COMPANY

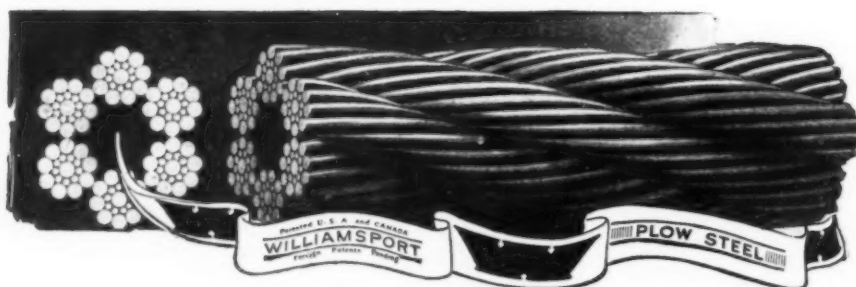
STERLING ON A WHEELBARROW MEANS MORE THAN STERLING ON SILVER

Milwaukee

MANUFACTURED FOR THE EUROPEAN MARKETS BY  
STERLING FOUNDRY SPECIALTIES LTD. STERLING WORKS, BEDFORD, ENGLAND

Wisconsin





## *The Good Name of a Manufacturer is Not a Guarantee Against Mistakes*

There's just one certain way of protecting yourself from getting the wrong grade of Wire Rope, i.e., the Telfax System of grade marking as provided in

# WILLIAMSPORT WIRE ROPE

If you haven't yet experienced a serious accident—you've been lucky—and luck changes.

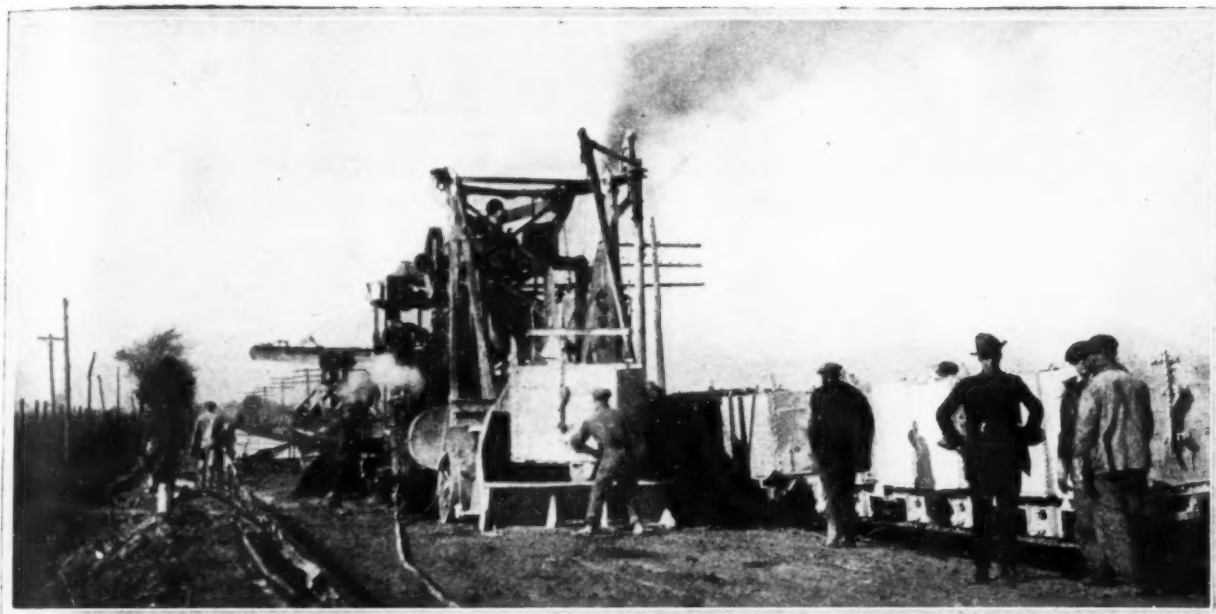
There's no excuse for taking these chances and it's dangerous practice. Now is the time to stop it. Absolute protection is available in Williamsport Wire Rope at no additional cost. Use it!

## WILLIAMSPORT WIRE ROPE COMPANY

Main Office and Works  
Williamsport, Pa.

Gen'l Sales Office  
Peoples Gas Bldg., Chicago

## Industrial Haulage With Western Holds the Record



Western Batch Boxes and Car Trucks in Concrete Road Work.



Increase production by using Western  
Heavy Duty Trucks

**S**EVERAL world's concrete road records were broken in Illinois last season—a distinct triumph for Industrial Haulage with Western cars and batch boxes.

Realizing that for a large modern mixer to be profitable the supply of material must be constant, we have produced a Heavy Duty Car Truck which will not break down under intensive work. It will deliver your aggregate where you want it when you want it. It will give you maximum production with minimum delays and upkeep costs. It will give you a profitable season.

The installation is so important a factor in figuring a contract and making a profit, why not let us add our experience to yours, analyze the contract before the letting and suggest how it can be handled most economically, then bid accordingly. Write to-day.

Western



### Western Wheeled Scraper Company

Founded 1877

*Earth and Stone Handling Equipment*  
**AURORA, ILLINOIS**



## 25 UNIVERSALS

Busy All Winter within a few miles of the Statue of Liberty

**N**INE kept busy on snow removal alone—one here digging a basement—one there erecting steel—the rest everywhere doing almost every conceivable kind of work.

Mobility makes it possible to get to these jobs quickly and cheaply and the speedy Universal can replace 15 to 50 men on the job. On the snow handling work they did the work of 50 to 75 men and speeded traffic by loading trucks far faster.

What is true in this locality is true in like proportion in many other sections of the country and you find Universals busy all the way from New York to San Francisco and from Duluth to New Orleans. Many foreign countries have them also because you can rely on Universals and do not have to be close to a supply of parts to keep them going.

The Universal Policy is to build with ample reserve power and highest grade materials and construction backed by the best engineering skill, as the surest guarantee that Universals will give you the most reliable service of any crane.

Wire or Write for New Bulletin 28-H

**The Universal Crane Co., 925 Swetland Bldg., Cleveland Ohio**

BRANCH OFFICES:

NEW YORK

BOSTON

CHICAGO

Representatives in All Large Cities





# Get Rid of the High Spots in Your Concrete Roads



## One Man Does the Work of Ten

At the request of many contractors and road builders, the Ingersoll-Rand Company has perfected a Portable Concrete Surfacer.

No matter how much care is used in the construction of concrete roads, it is sometimes almost impossible to avoid high spots, especially on grades and banked curves where the concrete tends to "creep."

The Ingersoll-Rand Portable Concrete Surfacer will remove such high spots quickly and at small cost—about one-tenth of what it would cost if hand methods were used. It is illustrated above. It consists of a special mounting for a "Jackhammer" Drill. As nearly every contractor already has a "Jackhammer," it is usually necessary to buy only the mounting.

The capacity of the machine can be estimated from the trial recently made on Route No. 11 of the Illinois State Highway. There, an operator who had never seen the machine before, resurfaced 30 sq. ft. of highspot in two hours. The high spot was  $1\frac{3}{4}$ " at the joint and tapered down to a feather edge at about  $1\frac{1}{2}$  ft. on each side of the joint.

*Bushing down uneven joint between old road and new section with an Ingersoll-Rand Portable Concrete Surfacer*

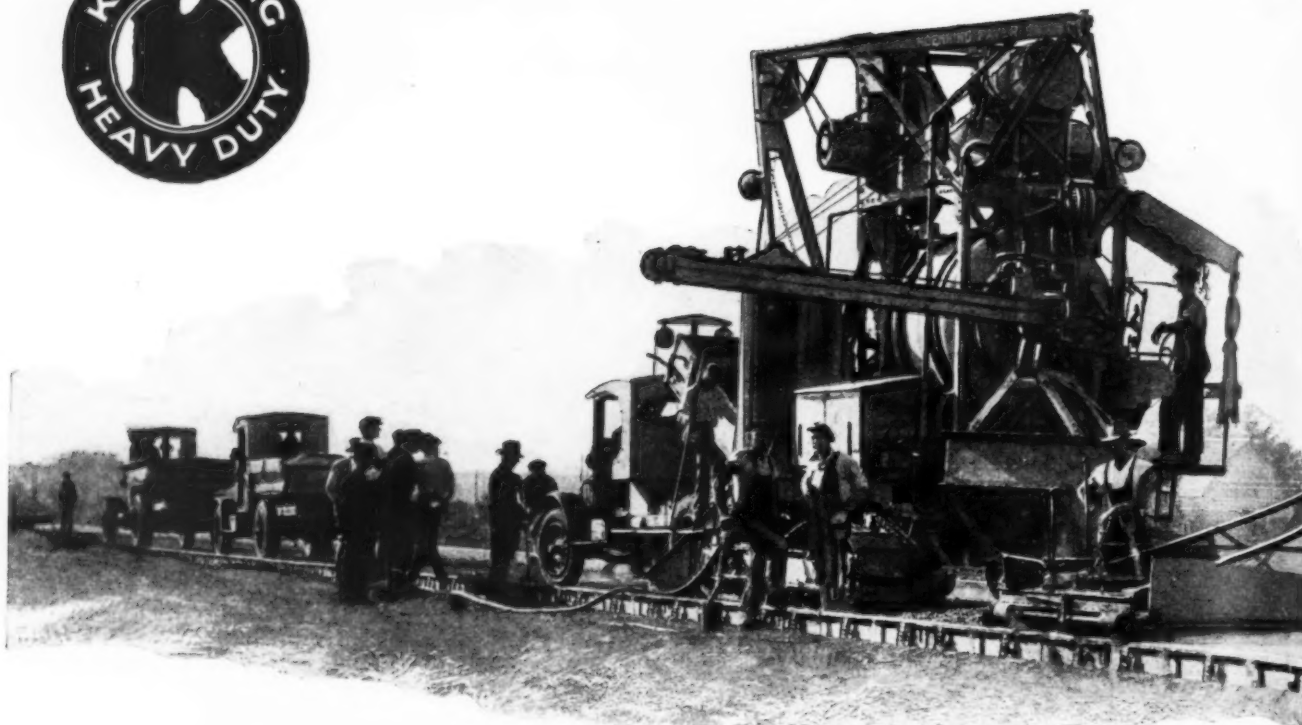
**INGERSOLL-RAND COMPANY — 11 BROADWAY, NEW YORK CITY**

*Offices in principal cities the world over*

FOR CANADA REFER CANADIAN INGERSOLL-RAND CO., LIMITED, 260 ST. JAMES STREET, MONTREAL, QUEBEC.

# Ingersoll-Rand

# KOEHRING



## Is Price the Same as Value?

**W**HEN every one wants mixers and wants them quickly, any mixer finds it easy to get any price. That is always a period of over-pricing! When mixers are hard to sell, it is easy to build down to a low price—to sell on low price in a slow market!

But, isn't it true that the leadership manufacturer has everything to lose and nothing to gain in either over-pricing or under-building? *His* future rests absolutely on the good will and confidence of his customers.

In good times he may see poorly constructed mixers selling at prices equal to his better mixer. In poor times he may see other machines built down to low prices, and competing on a price basis. But the leader cannot compromise quality. He must never take price advantage of a big demand or cut quality to lower prices when mixers are hard to sell!

No one questions the leadership of the Koehring Company—in volume of business—equipment to manufacture economically—in the development of the modern mixer—in service—in values—in deserving the outstanding confidence of contractors. That's why Koehring prices will always represent Koehring value, actual mixer quality, a reasonable profit—and no more!

*Koehring means stability of value and price—always!*

### KOEHRING COMPANY MILWAUKEE WISCONSIN

PAVERS, MIXERS—GASOLINE CRANES, DRAGLINES AND SHOVELS

*Sales Offices and Service Warehouses in principal cities.*

Foreign Department, Room 1370, 50 Church St., New York City  
Canada, Koehring Company of Canada, Ltd., 105 Front Street, East,  
Toronto, Ontario

Mexico, F. S. Lapum, Cinco De Mayo 21, Mexico, D. F.

### Do You Really Know Koehring Heavy Duty Construction

—why the Koehring means greater profits—  
is a better investment? Why not

*Write for Paver Catalog P. 17*

**Paver Capacities**—7, 13, 21 cu. ft. of Mixed Concrete. Auxiliary equipment and choice of power to suit individual needs.

**Construction Mixers**—10, 14, 21, 28 cu. ft. of Mixed Concrete. Steam, gasoline or electric power. Mounted on trucks or skids. Rubber tired wheels optional. 28-S on skids only.

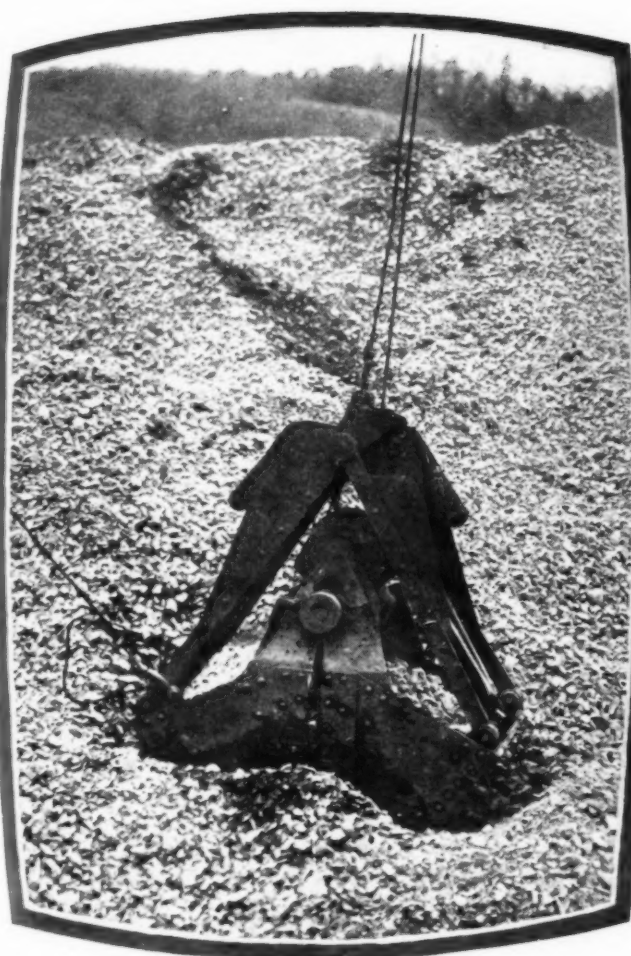
**Dandle Capacities**—7 cu. ft. Mixed Concrete. Two or four cylinder gasoline engine. Power charging skip, or low charging hopper and platform. Rubber tired steel disc wheels.



A 2588-1

# Lakewood

## Clam Shell Buckets



**T**HE Lakewood Bucket was designed and built from the ideas of practical men. It is easy on cables and requires minimum of headroom.

The sheaves are mounted out on the arms so that the bucket digs evenly and also digs down, insuring a full load.

Cutting lips are extra large, of high carbon steel.

Maximum rigidity is secured with steel trusses riveted to the top of the arms and extending downward to the shell of the bucket, where they are hinged. This rigidity greatly reduces wear on bearings.

Made for both handling and digging purposes.

Size:  $\frac{1}{2}$  cu. yd. to 2 cu. yds.

*Write for Special Bulletin 26-S*

**The Lakewood Engineering Co.**

**CLEVELAND, OHIO**

Export Office  
30 Church St., New York City

Lakewood Engineering Company,  
Cleveland, Ohio.  
Please send me at once full details about Lakewood Clam  
Shell Buckets.

Name .....

Address .....

City .....





*for profitable  
Transport service*



**For a full quarter century Mack interests have been centered upon the manufacture of Motor Freight Carrying Vehicles and Motor Buses.**

Throughout the United States, Canada and in all foreign countries where representation has been established, experienced truck and bus buyers look upon MACK as an investment that not only has a twenty-five year back-ground, but one produced by an organization whose manufacturing and selling policy has been consistent and whose plant expansion and earnings have kept a conservative balance. In short:—To those with experience a sound investment and a MACK are one.

**Mack Trucks, Inc.**

**INTERNATIONAL MOTOR COMPANY**

**25 Broadway**

**New York City**

**PERFORMANCE COUNTS**

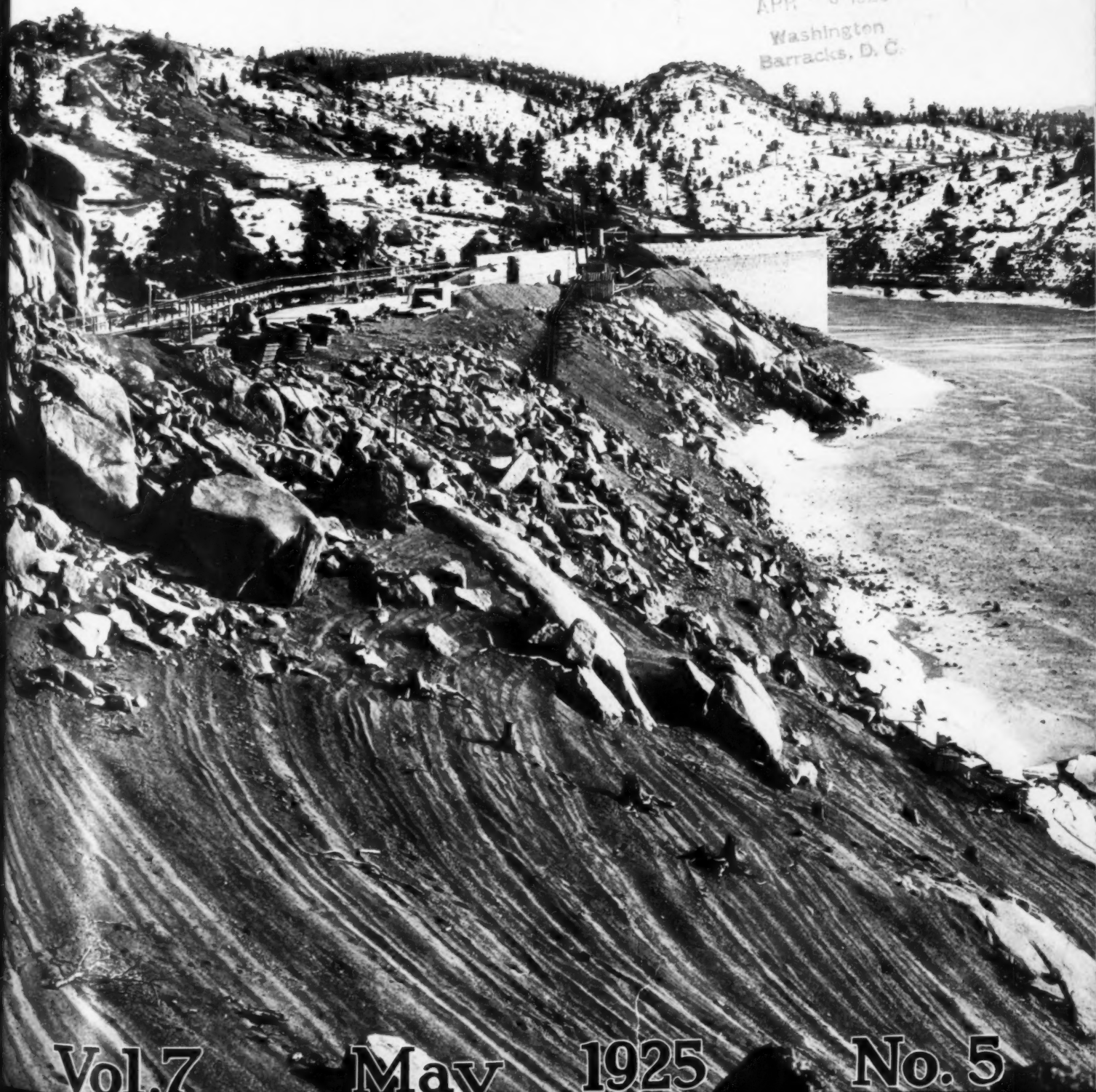
# Successful Methods

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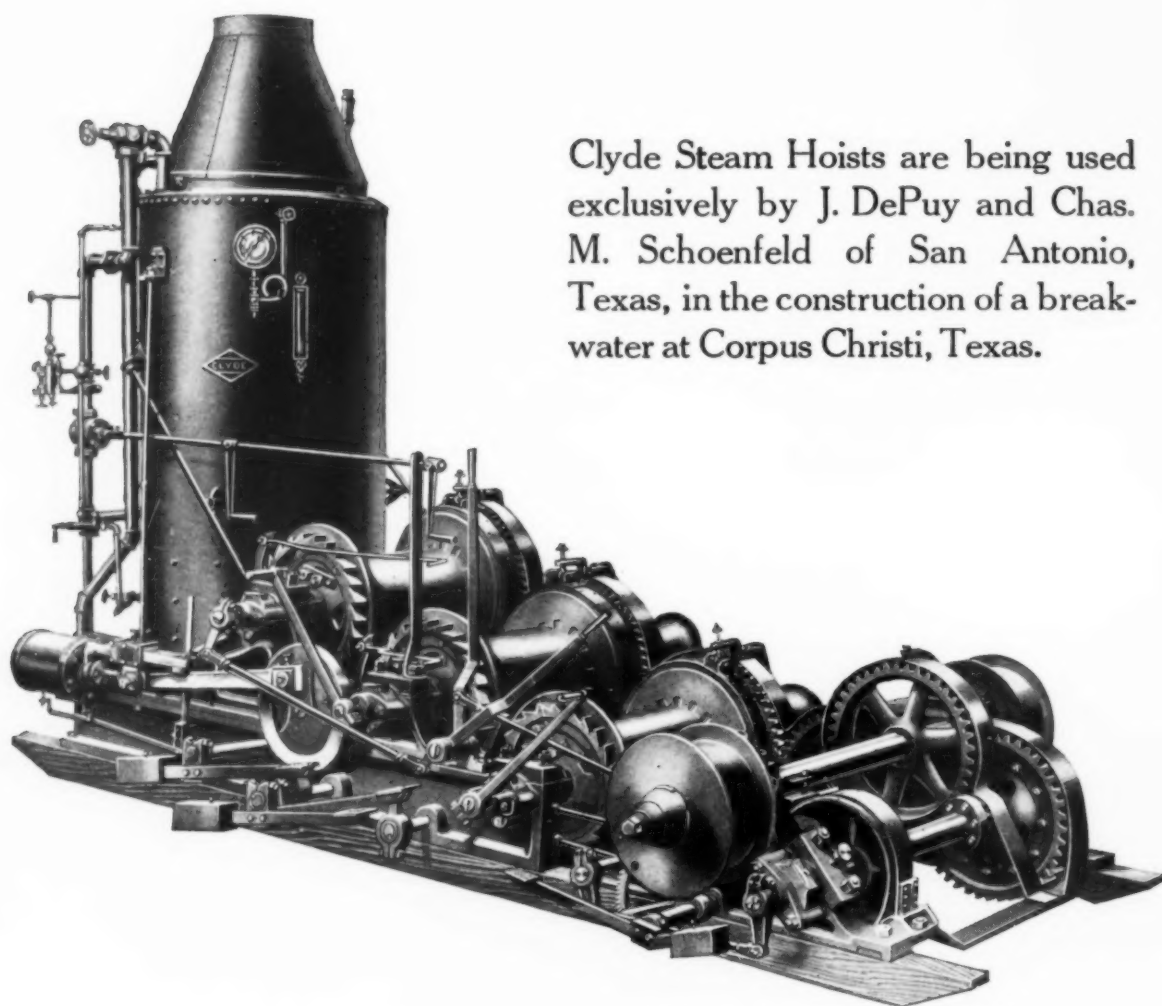
Vol. 7

May

1925

No. 5

# Standard Hoists and Derricks For the General Contractor STEAM · ELECTRIC · GASOLINE · BELT



Clyde Steam Hoists are being used exclusively by J. DePuy and Chas. M. Schoenfeld of San Antonio, Texas, in the construction of a break-water at Corpus Christi, Texas.

Manufactured in sizes and types to meet any construction requirements.

*You'll take Pride in your Clyde!*

## CLYDE IRON WORKS SALES COMPANY

Sole Distributors for CLYDE IRON WORKS, Duluth, Minn.

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555 Thurman St.

SEATTLE  
3410 First Ave. So.

*Branch Offices:*

CHICAGO  
11 So. La Salle St.

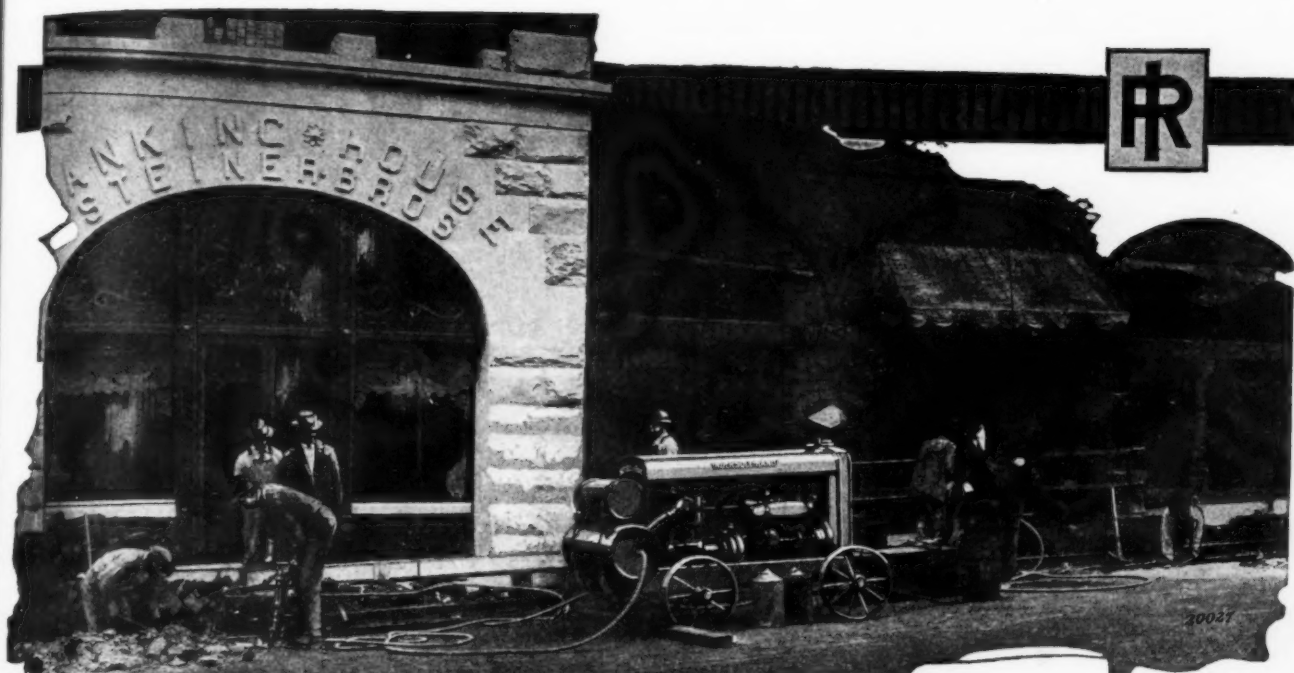
CINCINNATI  
1913 Union Central Bldg.

MEMPHIS  
119 Monroe Ave.

JACKSONVILLE, FLA.  
43-45 W. Forsyth St.

SAN FRANCISCO  
737 Monadnock Bldg





Opening up a trench through pavement with  
CC-25 Paving Breakers operated from 5x5-in.  
Portable Air Compressor

## This haste saves waste of time and labor

Speeding up jobs with Ingersoll-Rand portable air compressor outfits saves both time and labor.

In fact, on the kind of work shown here, this compressor and two men with CC-25 Paving Breakers did more work than fifteen men with hand sledges and picks—a big saving of labor. A trench was opened through the pavement in  $\frac{1}{4}$  to  $\frac{1}{2}$  of the time required by hand methods—a big time saving.

This company and hundreds of others have found Ingersoll-Rand Equipment a paying investment. Our booklet "100 and 1 Ways to Save Money with Portable Air Power" will show you how to make money with these machines.

Send for a copy.

INGERSOLL-RAND COMPANY—11 BROADWAY, NEW YORK CITY  
Offices in principal cities the world over.  
Canadian Ingersoll-Rand Company, Limited  
260 St. James Street, Montreal, Quebec.

# Ingersoll-Rand

# KOEHRING



## Higher priced—yes!

**N**OT because of any over-mastering greed or ridiculous stubbornness, but because the Koehring is built up to its price—to the last cent!

There will always be mixers sold cheaper than the Koehring—but the Koehring has proved its quality leadership. That's unquestioned—undisputed!

Isn't it the obligation of leadership to maintain quality and value? Isn't it true that the leader has everything to lose and nothing to gain, either in cutting quality to meet low price, or in over-pricing?

Be sure then that the only Koehring stubbornness is in the policy to build mixers of greater heavy duty construction and longer trouble-free service life!

*Write for Paver Bulletin P. 17*

### KOEHRING COMPANY MILWAUKEE WISCONSIN

PAVERS, MIXERS—GASOLINE CRANES, DRAGLINES AND SHOVELS

*Sales Offices and Service Warehouses in principal cities.*

Foreign Department, Room 1370, 50 Church St., New York City;  
Canada, Koehring Company of Canada, Ltd., 105 Front Street, East,  
Toronto, Ontario;

Mexico, F. S. Lapum, Cinco De Mayo 21, Mexico, D. F.

A 2619-I

#### Paver Capacities

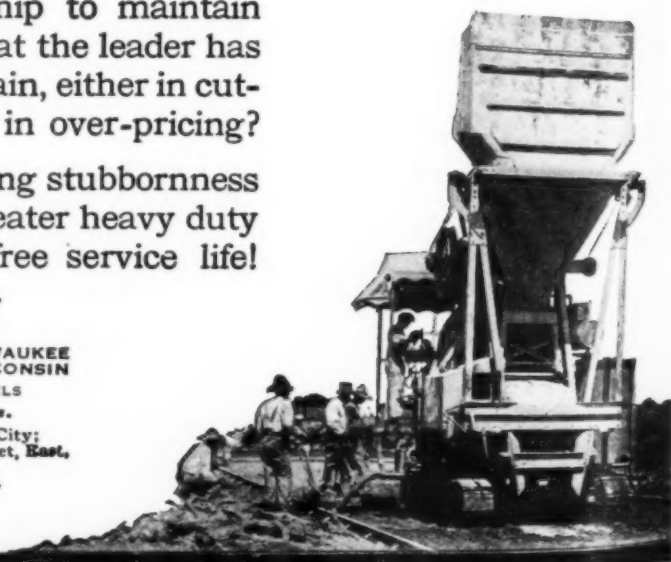
7, 13, 21 cu. ft. of Mixed Concrete. Auxiliary equipment and choice of power to suit individual needs.

#### Construction Mixers

10, 14, 21, 28 cu. ft. of Mixed Concrete. Steam, gasoline or electric power. Mounted on trucks or skids. Rubber tired wheels optional. 28-S on skids only.

#### Dandle Light Mixer

7 cu. ft. Mixed Concrete. Two or four cylinder gasoline engine. Power charging skip, or low charging hopper and platform. Rubber tired steel disc wheels.





In Far-away Countries

# WILLIAMSPORT WIRE ROPE

Telfax  
Tape  
Marked

is assisting in introducing modern methods  
and reducing the cost of heavy handling

Here's a picture of a Universal Crane whose manufacturers use Williamsport Wire Rope as Standard Equipment, serving the automobile industry efficiently and with record breaking results.

You too may use Williamsport Wire Rope and the protection it affords, that no other wire rope can give.

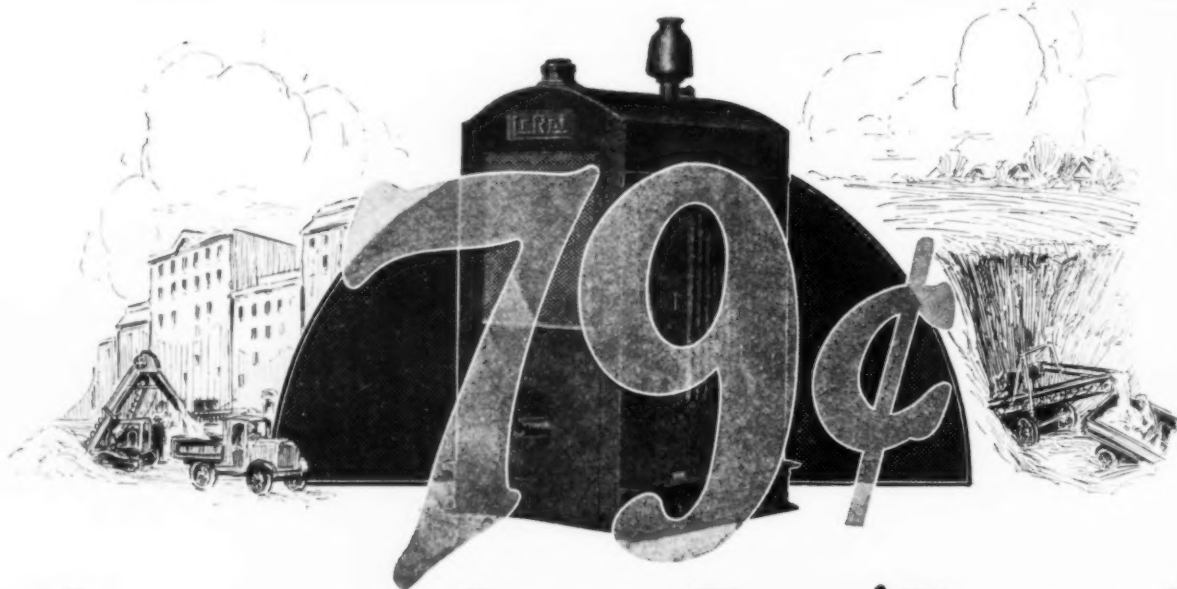
*Let us tell you more about it.*

## Williamsport Wire Rope Company

Main Office and Works  
Williamsport, Pa.

Gen'l Sales Office  
Peoples Gas Bldg., Chicago





## Conveyor and Loader Power Repairs'

There's no more to be had from a gas engine than that which it has. Volumes of what it *can do* are worth less than a few sheets of what it *has done*. Its net worth is measured by years of consistent service.

Le Roi Engines are preferred because they have performed. On Wagon Loaders and Portable Conveyors, Le Roi Engines showed an average repair cost of only 79 cents an engine per year. Further—this figure covers the past four years when "fleets" of Le Roi rendered dependable and economical service on this equipment.

This surprisingly low upkeep cost vividly emphasizes Le Roi

quality—its precise and durable construction, its "power-fullness." That Le Roi Engines supply ample, dependable and economical power is not only proven in this field but also in the many others they now serve.

Another thing—while Le Roi Engines are made in three sizes ranging from 3 to 15 H.P., 85 per cent of the parts are interchangeable.

Le Roi Company, Milwaukee

# LE ROI ENGINES

for dependable power!

*Have you  
sent for this  
New Bulletin?*

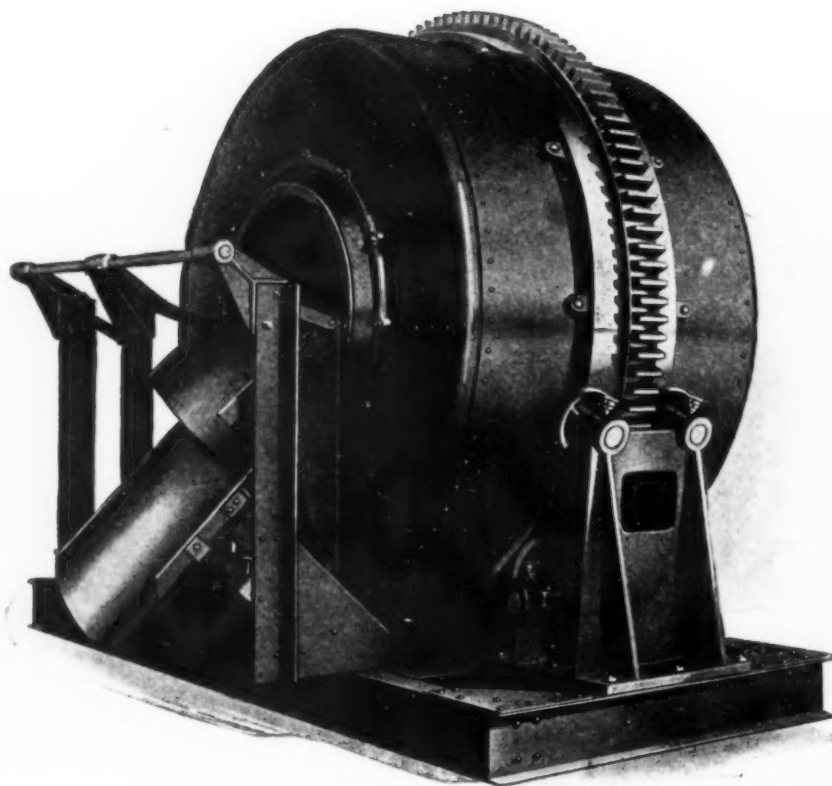
*The Universal Crane Co.  
937 Westland Bldg.,  
Cleveland, O.*



# UNIVERSAL CRANES

*or* Highway Construction & Maintenance Work  
*Bul. No. 28*

9015



Two 1-yd. mixers like this were recently shipped to the Foundation Co. for their large projects in Japan.

## *A Different Slant*

Not from a Contractor but of interest to them is this statement—

**"Lakewood Mixers stand more abuse with less upkeep expense and that's what interests me in my business."**

That statement coming as it does from a well-known organization which rents all makes of concrete mixers, should interest you.

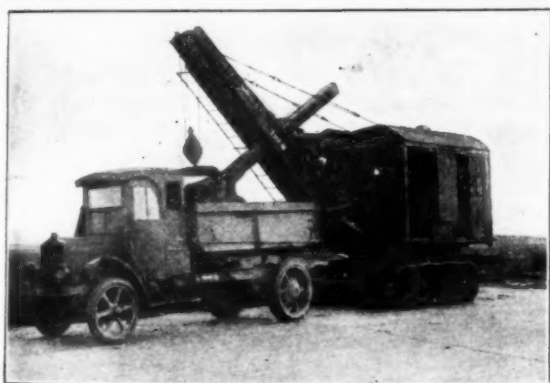
*Write for Bulletin 20-S*

**THE LAKEWOOD ENGINEERING COMPANY**  
Cleveland, U. S. A.

Export Office: 30 Church St.  
New York City

# LAKEWOOD





### Can be Towed by One Motor Truck

Will Walk Right Up a 30% Grade—Will Travel 11 $\frac{1}{2}$  Miles per Hour—Steers in Large or Small Radius Without Stopping—Has More Clearance Underneath—Can Dig Closer at Either End—Will Not Damage Pavements—Has Self-cleaning Treads and Drive Rollers—Has Tread Pins that Need No Lubrication—The Most Durable Truck Ever Built.

The THEW CENTER DRIVE Does It

## Why Worry Over a Tough Job

When the going is rough and the digging tough, put it up to a Thew Gasoline Shovel.

That's what the Hornung Construction Company of Hoboken did as the picture shows. Are they satisfied with their judgment? Ask them.

Their Thew is eating its way through thick clay, hardpan and rock in double quick time. When an especially obstinate boulder is struck, they concentrate the full engine power, sufficient to crowd, hoist and swing, into one tremendous heave and Mr. Rock just has to come, that's all.

And in getting around, the Thew Center Drive Truck laughs at loose rock, slippery mud and deep holes.

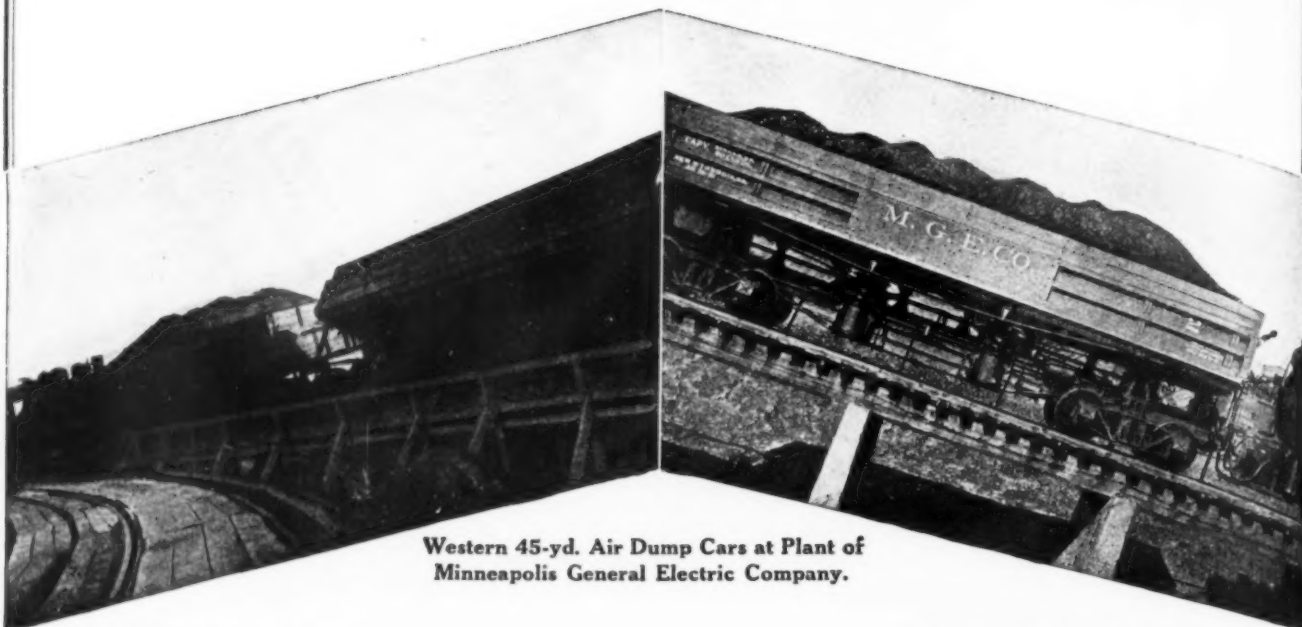
Watch a Thew Gasoline at work. It speaks for itself.

THE THEW SHOVEL COMPANY,  
LORAIN, OHIO

# Thew Shovels

## Dig Faster—Last Longer

## Western Dump Cars in Waste Disposal



Western 45-yd. Air Dump Cars at Plant of  
Minneapolis General Electric Company.

Unloading at the Cinder Dump.

Taking Coal to the Power House.

**M**ANY industries are converting waste into property by hauling cinders, ashes, etc., in Western Air Dump Cars and dumping the material on low ground. Ask them why and they will tell you that—

"They are Dependable."

"They dump by air instantly."

"They dump in either direction as desired."

"They are built strong and scientifically designed for economical operation."

"The cost of maintenance is small."

"They are built in all practical sizes to fit varying haulage conditions."

May we give you full particulars about these industrial helps and refer you to industries and steam-shovel contractors who are using them? Write to-day.



**Western**

*That's why!*

### Western Wheeled Scraper Company

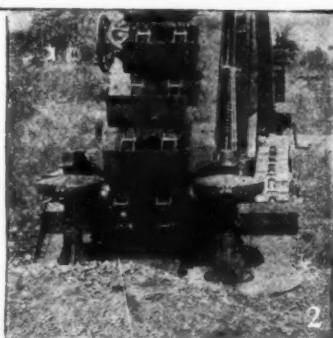
Founded 1877

*Earth and Stone Handling Equipment*

**AURORA, ILLINOIS**



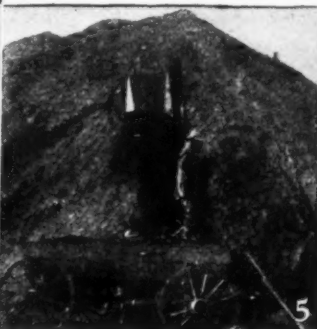
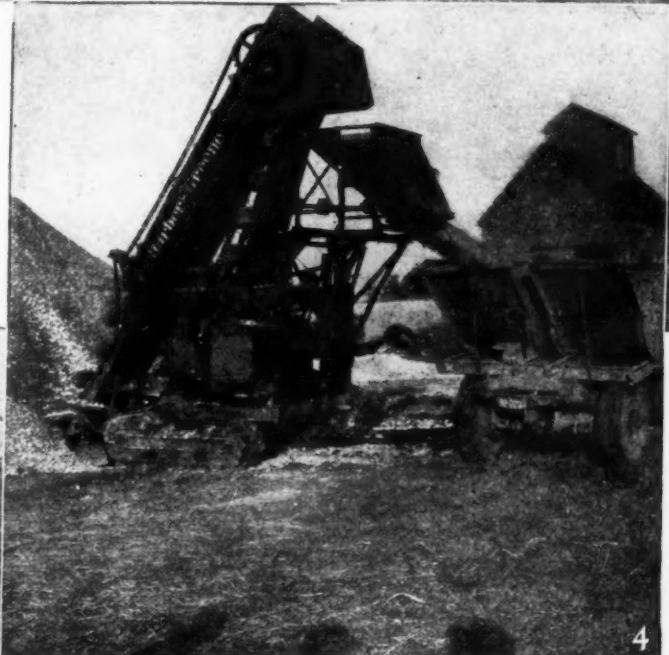
1—Barber-Greene on a state job where materials were stored in advance. Illinois urges advance storage as the most practical way to keep a job running steadily.



2—Showing the patented disc feeder. It is positive enough to feed the buckets in any material, but capable of slipping any overload. It abolishes the shovel clean-up.



3—Working in stone, a single Barber-Greene and one man made 376 loads in one day, for the Warren Company. Each load was 18 cubic feet.



4—Loading 2-batch trucks is a matter of less than a minute—no matter where your material is stored—or how much.

5—Keeping 75 teams on the move with a Barber-Greene. It loaded 1½ yards in 40 to 45 seconds, and replaced 20 shovellers for the Madison County Commissioners, in Indiana.

# Telling "Old Man High Overhead" Goodbye

## Barber-Greene reduce the cost of material handling

When you want more concrete at lower costs, the first fellow who must be told goodbye is "Old Man High Overhead." Now, let's see who he is.

Expensive machinery that can't pay its way, that lies idle for long periods of time, that insures high transportation, upkeep and erection charges, that can't handle the stuff, is the worst offender. In addition to not being able to pay its own way, it keeps other expensive equipment from working to capacity.

A paver costs a lot of money. It has to be kept humming all of the time to obtain a maximum dividend value from it. If expensive material handling equipment can't make that paver drive—and can't keep material handling costs down—it constitutes a loss to the contractor.

Here's how the List & Hallet Construction Company of Kansas City, Missouri, told "Old Man High Overhead" goodbye.

They gave a Barber-Greene Model 42 Bucket Loader the job of making eight two-batch industrial cars, one 3½-ton gasoline locomotive and 1890 feet of narrow gauge track keep a mixer busy. The fact that the Barber-Greene averaged 4½ minutes for loading a four car train permitted List & Hallet to pour six miles of concrete pavement with this minimum of equipment.

That was a terrible blow to "Old Man High Overhead."

Over in Michigan, a Barber-Greene Bucket Loader averaged 50 yards per hour throughout an entire season in loading loosened sub-grade material. That is only one of the many jobs that Barber-Greene are swinging into when they are not loading and batching for mixers.

If you want to find out more about the rest—and would like to see the more conspicuously successful material handling layouts that were developed during 1924—send for a copy of "Contracting with Barber-Greene." It's free to contractors.

BARBER-GREENE COMPANY—Representatives in 50 Cities—530 W. Park Ave., Aurora, Illinois

# BARBER

Portable Belt Conveyors

Coal Loaders . . . Automatic



# GREENE

Self Feeding Bucket Loaders

Ditch Diggers . . . Coal Feeders





## For Up-to-Date Patrol Work

Wherever the 2-Ton "Caterpillar" has been assigned to patrol work almost invariably the result has been *more miles of better road* at remarkable savings of time and money.

McDonough County, Illinois, uses five 2-Ton "Caterpillars" for patrolling 200 miles of State Aid road. Each tractor, assigned to a certain district, makes a round trip on a 12 to 15 mile stretch of road each day, pulling an Adams No. 3 Maintainer.

When not maintaining, the tractors are used with 6-foot blade for clearing ditches; with 6-foot Fresnos for filling about culverts or bridge abutments; for hauling dirt and gravel, and other odd

jobs. In fact, the "Caterpillar" does everything that horse-patrol can do and many jobs which ordinarily would be left to heavier road equipment. One man with a 2-Ton "Caterpillar" replaces 5 to 6 men with teams; and performs a greater variety of work.

Accurate cost records of patrolling with "Caterpillars" as against horses—records kept by the County Superintendent of Highways—will be sent on request.

Every county has the problem to deal with of caring for secondary roads. We have facts and figures which you will find invaluable in working out your own patrol system. Write us for illustrated literature and information.

**The Holt Mfg. Co., Inc.**

Peoria, Ill.

Export Division: 250 W. 54th St., New York

Stockton, Calif.

**CATERPILLAR**  
REG. U.S. PAT. OFF.

# "Satisfactory Now as Always"

John Grewe Construction Co.  
St. Louis, Mo.

Gentlemen:

On the Rosati-Kain High School job Sterling Wheelbarrows, and Concrete Carts are used throughout.

We like the Sterling Wheelbarrow due to its rigid leg construction. The self-lubricating wheel shaft and the manner in which the load is balanced over the wheel mean easy work for the men and they like them.

On the Rosati-Kain High School they were used for charging the mixer at the bottom, and Sterling Carts were used for wheeling concrete at the top floor. They worked out very nicely on this job as they always have, and we will continue using them in the future.

Yours truly,

JOHN GREWE CONSTRUCTION CO.

*L. P. Halladay*

Bulletin 39 tells  
the story  
Ask for it



Flush Riveted Spokes give  
Smooth Tread. A very  
important detail and

Only One of the Many  
in Sterling Wheelbarrow  
Construction.

## STERLING WHEELBARROW COMPANY

STERLING ON A WHEELBARROW MEANS MORE THAN STERLING ON SILVER

Milwaukee

MANUFACTURED FOR THE EUROPEAN MARKETS BY —  
STERLING FOUNDRY SPECIALTIES LTD STERLING WORKS, BEDFORD, ENGLAND

Wisconsin

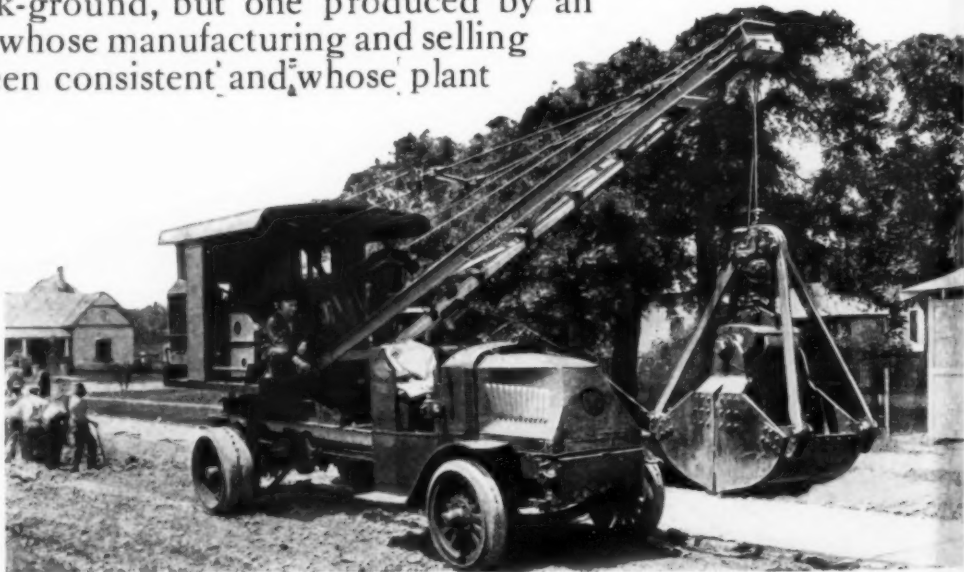
Warehouse Stocks And Leading Dealer Stocks Everywhere



For a full quarter-century MACK interests have been centered upon the manufacture of motor freight carrying vehicles and motor buses.

## For Profitable Transport Service

Throughout the United States, Canada and in all foreign countries where representation has been established, experienced truck and bus buyers look upon MACK as an investment that not only has a twenty-five year back-ground, but one produced by an organization whose manufacturing and selling policy has been consistent and whose plant expansion and earnings have kept a conservative balance. In short:—To those with experience, a sound investment and a MACK are one.



Mack Trucks, Inc.

**INTERNATIONAL MOTOR COMPANY**

25 Broadway

New York City

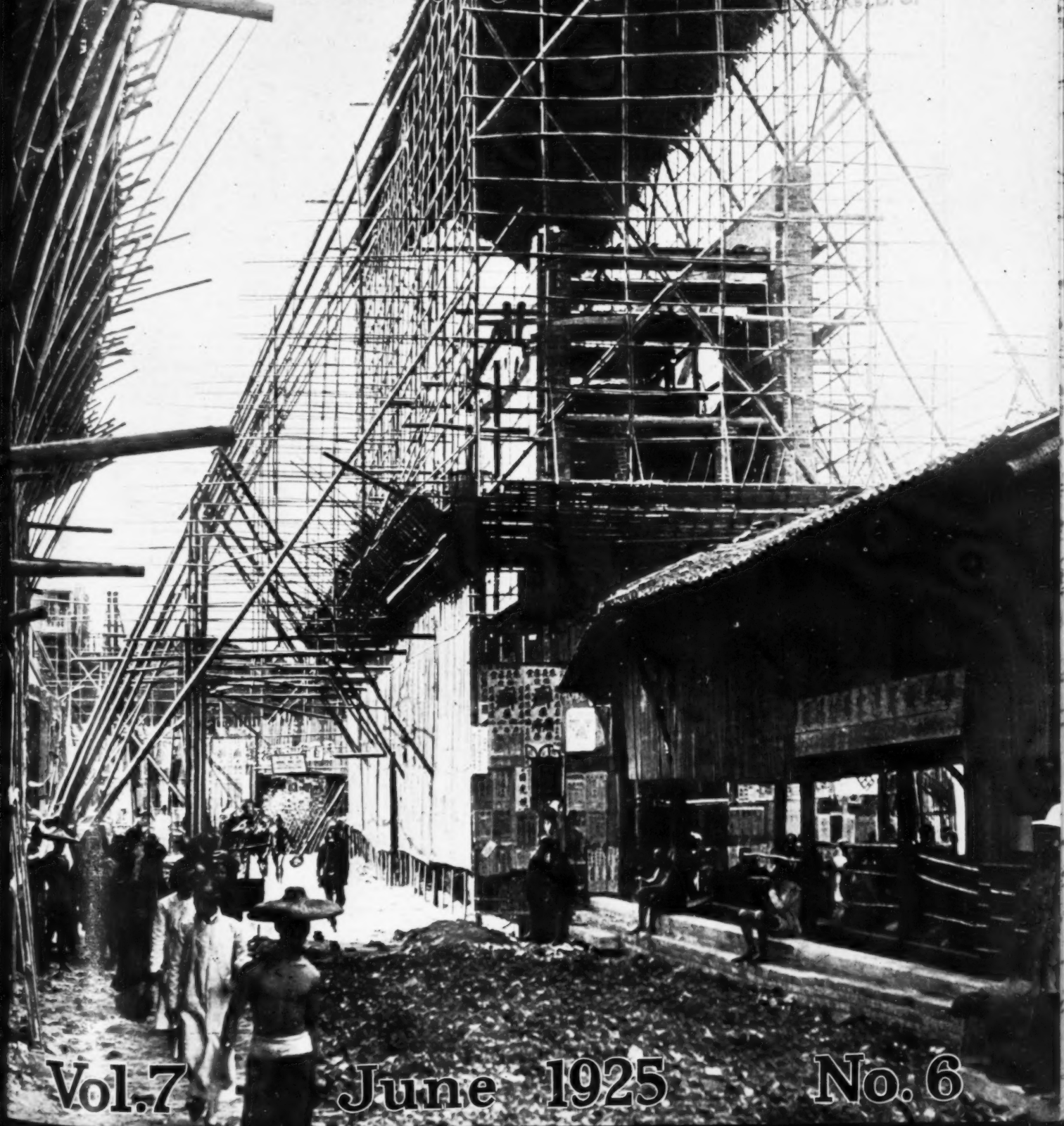
**PERFORMANCE COUNTS**

REG. U.S. PAT. OFF.



# Successful Methods

Construction • Road Making • Engineering • Industrial • Mining



Vol. 7

June 1925

No. 6



## Average Repairs of All LeRois!

In all parts of the country, on numerous types of construction equipment, Le Roi Engines have but one duty—to give dependable and economical power.

Of all Le Roi Engines in service, the average repair cost per unit was only 79c per year. And this exceptionally low figure covers the past four years when continuous operation and durability were the main requirements of power operated equipment.

Such performance is typical of Le Roi Engines. Their astonishingly low repair part costs—indicative of reliable power—have gained for them world-

wide acceptance and established their high standard.

After all, it is the continuous every minute of the day service that really counts and makes greater profit for the contractor. Just think of what an occasional shutdown of an hour or two means, and what it costs.

Le Roi Engines' claim to dependable power is an earned one. They have been tried and proven.

Le Roi Company, Milwaukee

# LE ROI ENGINES

for dependable power!

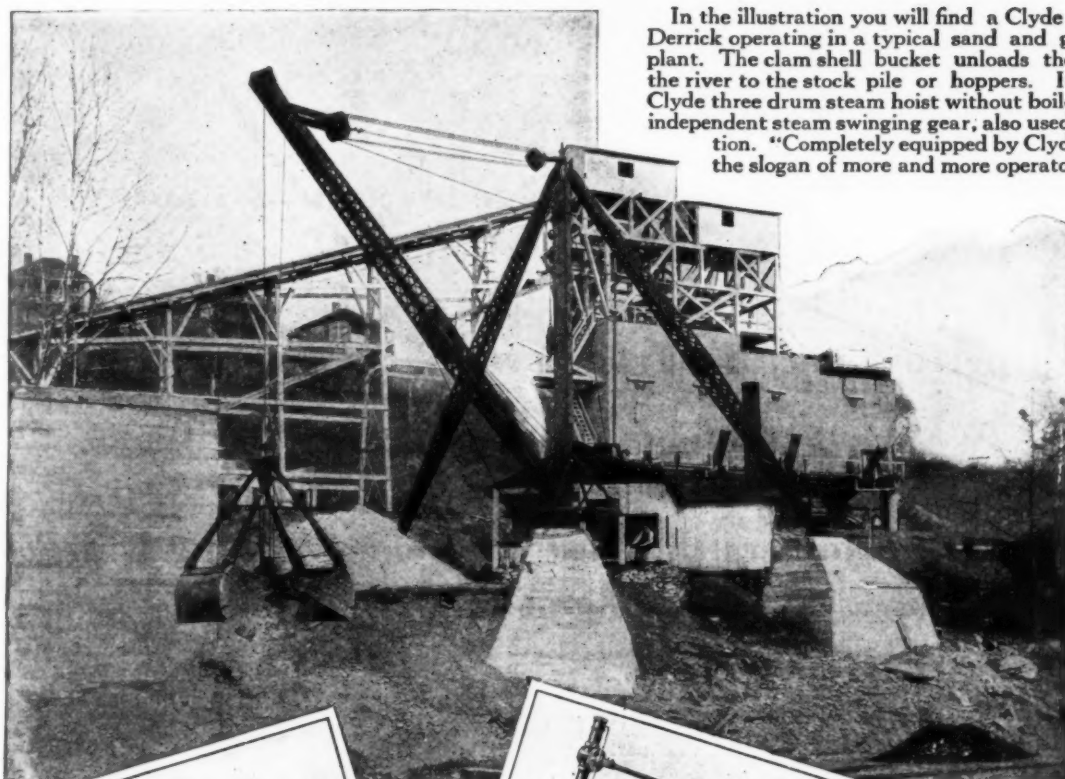


# CLYDE

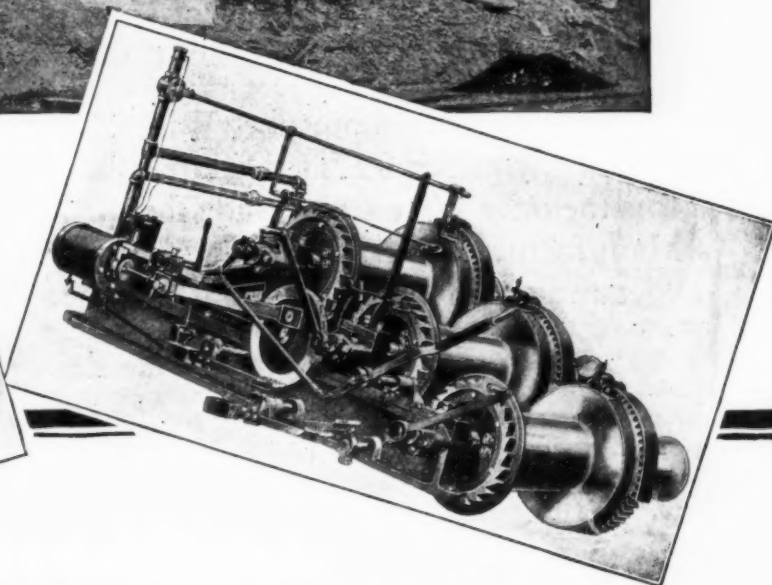
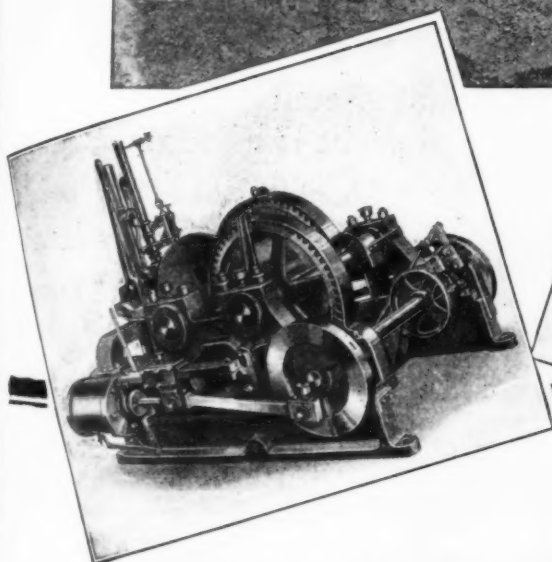
## Standard Hoists and Derricks

### For the General Contractor

#### STEAM · ELECTRIC · GASOLINE · BELT



In the illustration you will find a Clyde Steel Stiff Leg Derrick operating in a typical sand and gravel handling plant. The clam shell bucket unloads the barges from the river to the stock pile or hoppers. Inserts show a Clyde three drum steam hoist without boiler and a Clyde independent steam swinging gear, also used on the operation. "Completely equipped by Clyde" is becoming the slogan of more and more operators.



## CLYDE IRON WORKS SALES COMPANY

Sole Distributors for CLYDE IRON WORKS, Duluth, Minn.

Stocks Carried in the following Warehouses:

NEW ORLEANS  
309 Magazine St.

NEW YORK CITY  
E. 136 St. and Locust Ave.

PORTLAND, ORE.  
555 Thurman St.

SEATTLE  
3410 First Ave. So.

Branch Offices:

CHICAGO  
11 So. La Salle St.

CINCINNATI  
1913 Union Central Bldg.

MEMPHIS  
119 Monroe Ave.

JACKSONVILLE, FLA.  
43-45 W. Forsyth St.

SAN FRANCISCO  
50 Fremont St.



## What the **UNIVERSAL CRANE CO.** says about **Williamsport Wire Rope**—

voices the sentiment of many of the other Crane  
and Shovel manufacturers in America.

*Read what they say:*

**"We ship our cranes to many out of the way places of the world where high grade equipment is absolutely necessary to assure continuous performance far from a supply of spare parts."**

**"We are equipping our machines with Williamsport Wire Rope as part of our policy to give our customers the best equipment on the Universal Crane throughout that is possible."**

**"Next week we are shipping a crane to Russia."**

When you see Williamsport Wire Rope as standard equipment on a machine, you can feel assured that the entire equipment is high grade. It is the only Wire Rope made that proves its grade. Crane and Shovel Manufacturers can use cheaper ropes and inferior grade and maybe "get away with it" but it cannot be done with "Williamsport."

Let us send you a book telling you more about this.

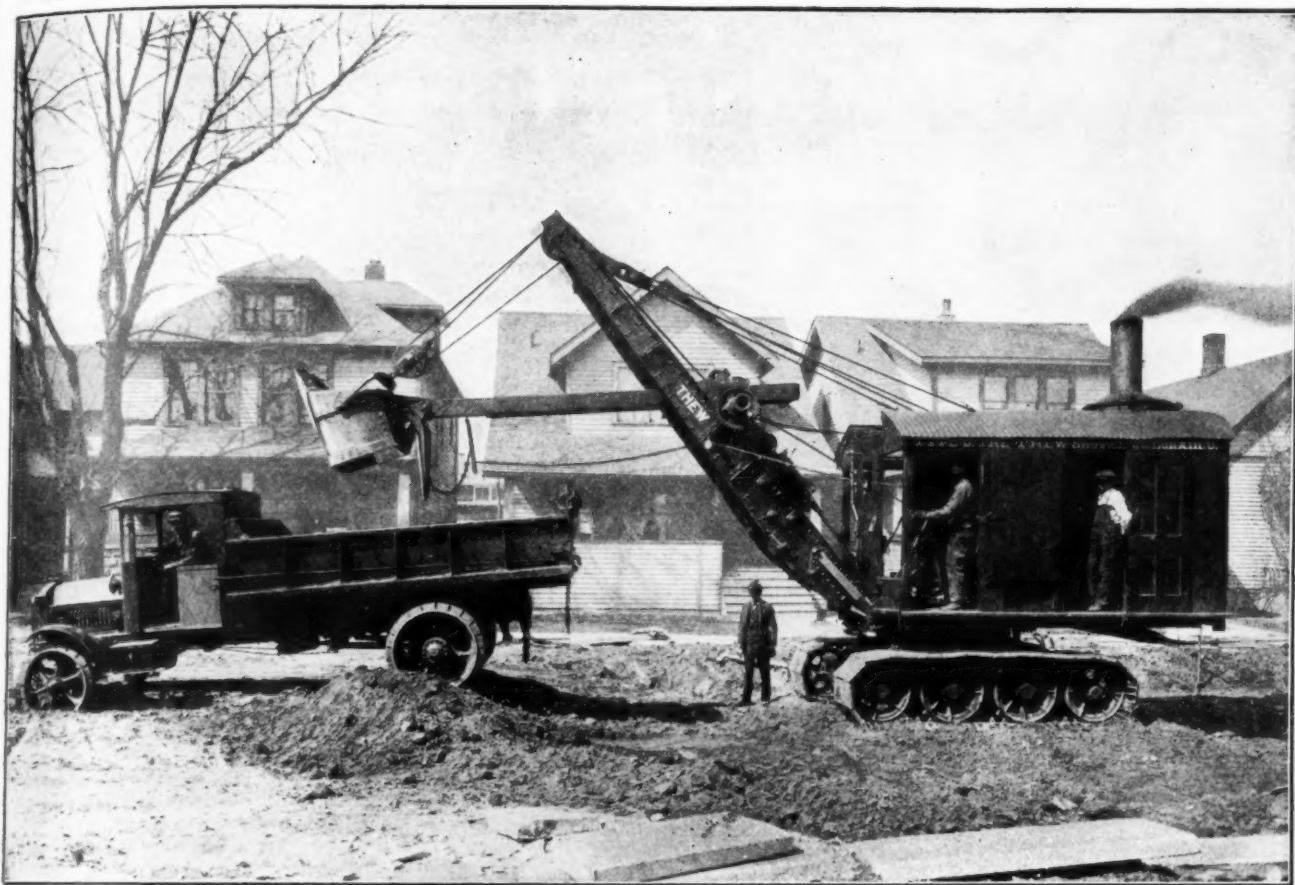
Get yourself informed on Wire Rope.  
It will be worth your while.



**Williamsport Wire Rope Co.**

Main Office and Works  
Williamsport, Pa.  
Gen'l Sales Offices  
Peoples Gas Bldg., Chicago





Steers in Large or Small Radius Without Stopping

Can be Towed by One Motor Truck—Will Walk Right Up a 30% Grade—Will Travel 1½ Miles per Hour—Has More Clearance Underneath—Can Dig Closer at Either End—Will Not Damage Pavements—Has Self-cleaning Treads and Drive Rollers—Has Tread Pins that Need No Lubrication—The Most Durable Truck Ever Built.

The THEW CENTER DRIVE Does It

## They Found It Out For Themselves

In January, when the startling claims for the New Thew Center Drive Shovel Mounting were announced, we naturally expected some skepticism. It was a pretty big chunk to swallow without an effort.

Of course we knew ourselves what the Center Drive Truck would do, because we had proved everything by the most vicious tests. But shovel buyers had to take our word for it then. Now they don't.

Numerous buyers did take our word for it because of past experience with Thew. Now they know from actual experience that our claims were really conservative.

If you haven't sent for Thew Bulletin 201 it will pay you to do it. Even if you are not in the market for a shovel now, you ought to know the facts for future use.

THE THEW SHOVEL COMPANY,  
LORAIN, OHIO

# Thew Shovels

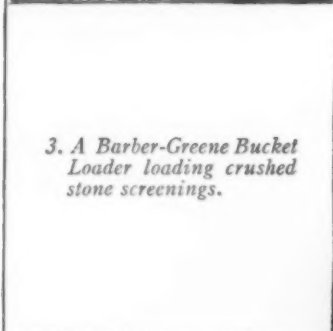
## Dig Faster—Last Longer



1. A Barber-Greene Bucket Loader loading directly from beneath a hopper-bottomed car on a construction job in Ohio.



2. A Barber-Greene type N, Portable Conveyor building up stock piles direct from cars.



3. A Barber-Greene Bucket Loader loading crushed stone screenings.



4. Another use for the Barber-Greene when it isn't busy loading and batching. Picking up surplus dirt from a recently dug water trench.



5. Two Barber-Greene loading 1 ton batch trucks for a Chicago paving company.

## 150% Faster and another Blow to "Old Man Overhead"

McClintic, Colwell & Gordy Company took a fall out of "Old Man Overhead" on a paving job near Syracuse, Indiana. To eliminate such costly overhead feeders as big payrolls and expensive equipment, they used a Barber-Greene to load gravel from stock piles located in adjacent fields at 3700 foot intervals.

They estimate that their Barber-Greene speeded up the work approximately 150%—which explains the high daily average of 878 lineal feet of 16 foot slab.

The only transportation equipment necessary to keep the 21-E mixer humming on this 5.46 mile job was a fleet of eight Fords. In addition, the Barber-Greene replaced a gang of 21 men.

"Old Man Overhead" never will recover from those two blows.

When this Barber-Greene is not loading and batching for

the mixer, it is not just so much idle equipment. McClintic, Colwell & Gordy use it for hauling plowed earth in gravel pit stripping.

These sort of things are what make Barber-Greene invaluable in driving "Old Man Overhead" off the job. There are other types of Barber-Greene equipment that help to chase the old fellow still further. Barber-Greene Conveyors can unload your material cars, build up your stock piles, store your cement and handle a lot of similar work.

"Contracting with Barber-Greene," our latest collection of paving and contracting layouts will show you in more detail how Barber-Greene is handing their daily wallops to "Old Man Overhead." Since this sort of thing is bound to be of unusual interest to contractors it is sent free to all those requesting it.

Send in your name, and we will see that you get a copy.

BARBER-GREENE COMPANY—Representatives in 50 cities—530 W. Park Ave., Aurora, Illinois

# BARBER

Portable Belt Conveyors

Coal Loaders . . . Automatic



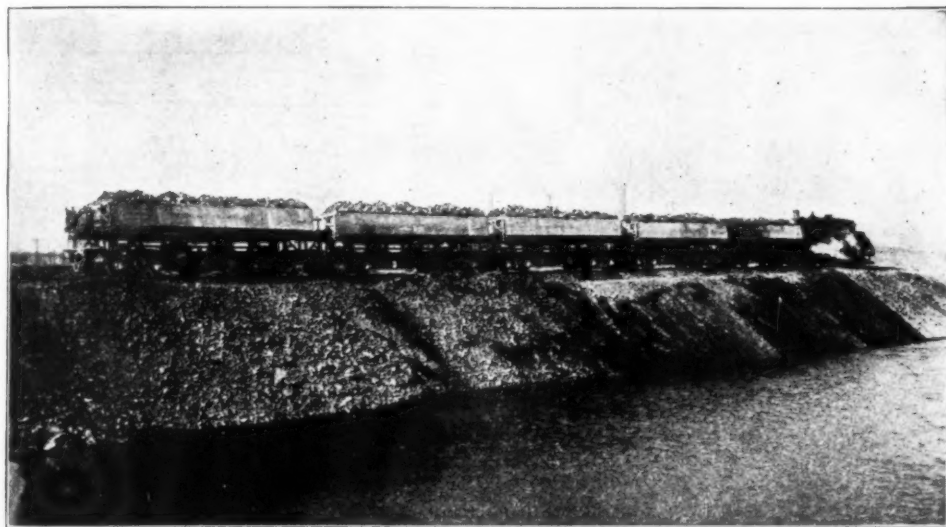
# GREENE

Self Feeding Bucket Loaders

Ditch Diggers . . . Coal Feeders



# Western Air Dump Cars in Slag Disposal



Western 35-yard Air Dump Cars Dumping Furnace Slag from the South Works into Lake Michigan.



**W**HEN the Illinois Steel Company wanted extra strong and economical air dump cars for handling slag from the South Chicago Works, Western cars were ordered, specially built, of 35-cubic yards capacity.

## Converting Waste Into Property

By the use of these cars new land is being made on the shore of Lake Michigan and later there will be a golf course where now rolls the mighty lake.

## Solving the Haulage Problem

Industry more and more is depending on Western air dump cars for the economical handling of plant waste — usually converting that waste into property. The strength and durability of Western cars together with their great dumping power and correct mechanical design particularly adapt them to the economical handling of all kinds of waste, as well as for use in steam shovel excavation.

While they are standard in many practical sizes, they can be built to suit special conditions.

May we not talk over with you the haulage problem at **your** plant, in an effort to save you money? Write to-day.

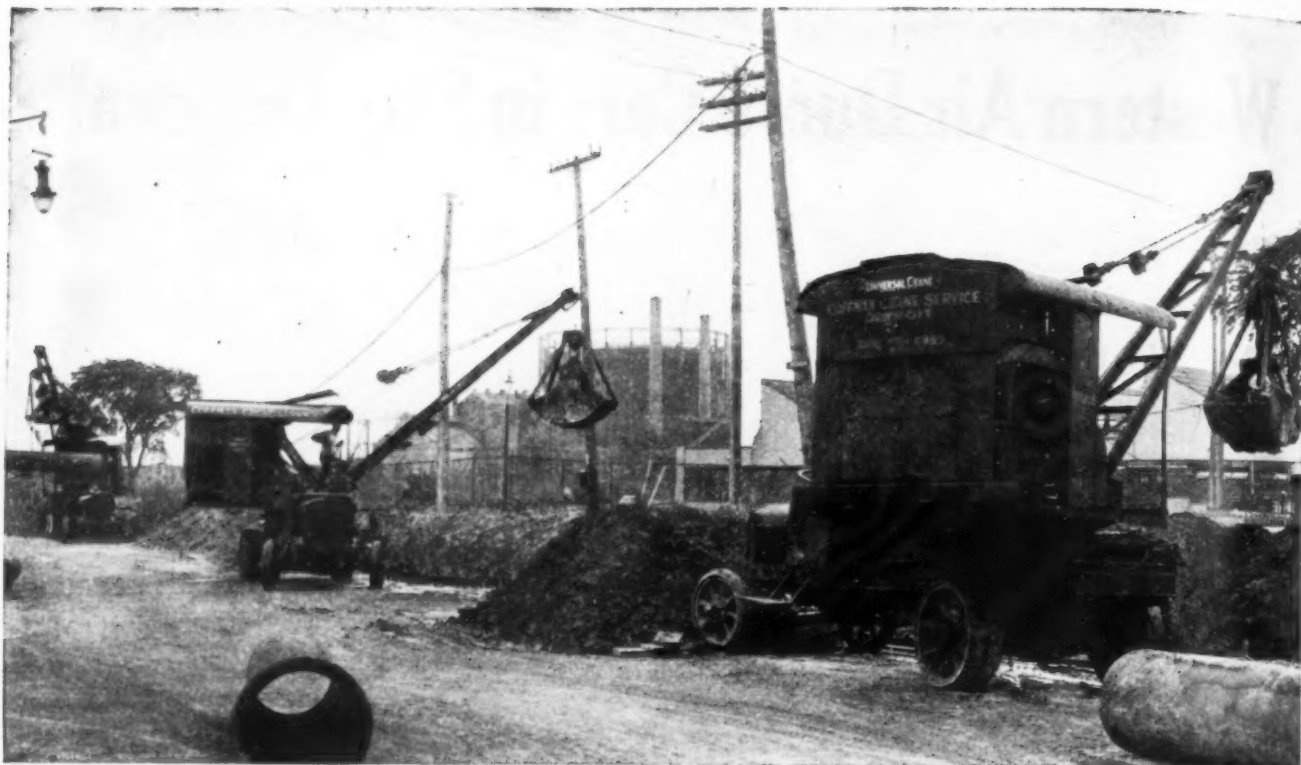
**Western**  
*That's why!*

## Western Wheeled Scraper Company

Founded 1877

*Earth and Stone Handling Equipment*

**AURORA, ILLINOIS**



## Mounted On Used Motor Trucks Each Universal Earns \$50-\$100 a Day!

These full revolving "Universals" were driven to this job quickly and cleaned it up in a hurry. They each earn from \$50 to \$100 daily for their owner. On special work they earn more. They unload cars of material, handle cellar excavations and other jobs at big profits, jobs that would not justify the expense of moving any other locomotive crane or shovel to them.

You can drive a Universal to a job at motor truck speed and it is ready to work the instant it gets there. No outriggers are necessary and the quick  $5\frac{1}{2}$  r.p.m. swinging rate and high hoisting speeds often mean as big a day's

work as larger machines. Under ordinary conditions a Universal is capable of handling one car of sand, coal, broken stone, etc., per hour at a total cost of \$10 to \$15 a day—only one operator required for crane and truck. Crane is transferable from one to another of the following mountings:

Motor Truck  
Trailer  
Steel Wheel Yard Truck  
Continuous Tread Truck  
Railroad Flatcar Carriage

Power—Gasoline or Electric—100% Over-powered.

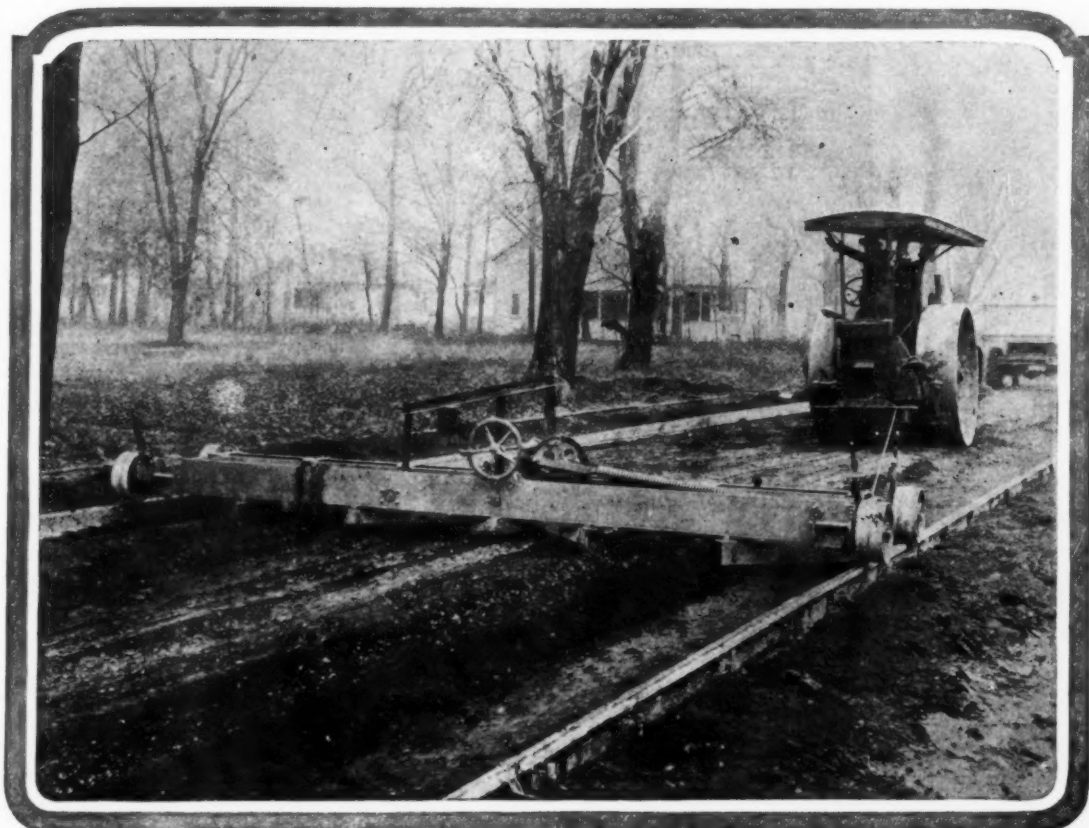
*Send for New Construction Bulletin No. 28-AA*

The Universal Crane Co., 951 Swetland Bldg., Cleveland, Ohio



# LAKEWOOD

*Paving and Construction Equipment*



## The Subgrader

**Planes the Subgrade to Exact Depth and Cross Section**

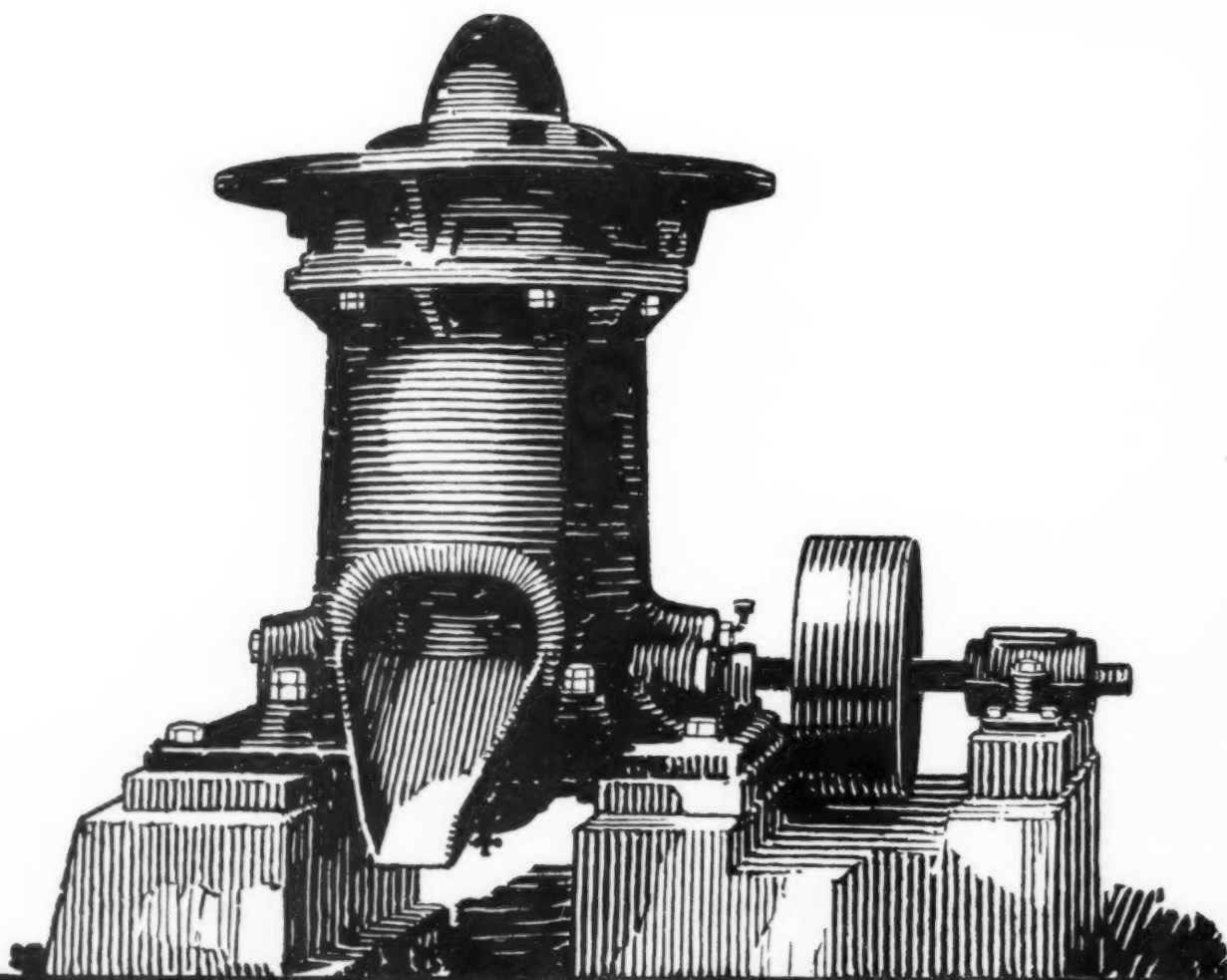
Six years' experience has proven without vestige of doubt that no other tool on the road job can make greater saving or produce larger returns on the original investment than the Lakewood Subgrader.

*Send for New Bulletin No. 46-S*

**THE LAKEWOOD ENGINEERING CO.**  
CLEVELAND, OHIO

.....  
LAKEWOOD ENGINEERING CO.  
Cleveland, Ohio.  
I want complete information on the Lakewood Subgrader.  
Send me all the printed matter on the subject—  
at once.  
Name .....  
Address .....  
..... S





# SUPER CRUSHERS

AUSTIN Super Crushers, made in sizes corresponding to the Austin Standard No. 3, No. 4 and No. 5, were designed for crushing extremely hard rock and gravel to the small sizes required for road surfacing and reinforced concrete construction.

Besides embodying all of those features which have contributed to the remarkable results attained by Austin Standard Crushers, they are distinguished by the following characteristics:

*An extremely large eccentric.*

*An extremely large lower shaft, bearing in the eccentric.*

*Automatic and ample lubrication of the eccentric.*

*One main frame for any position of the countershaft.*

*A special bulletin describing these super crushers will be mailed to you upon request.*

*Let our engineers assist you in laying out that new crushing plant.*

Please send me a copy of the Austin Super Crusher Bulletin.

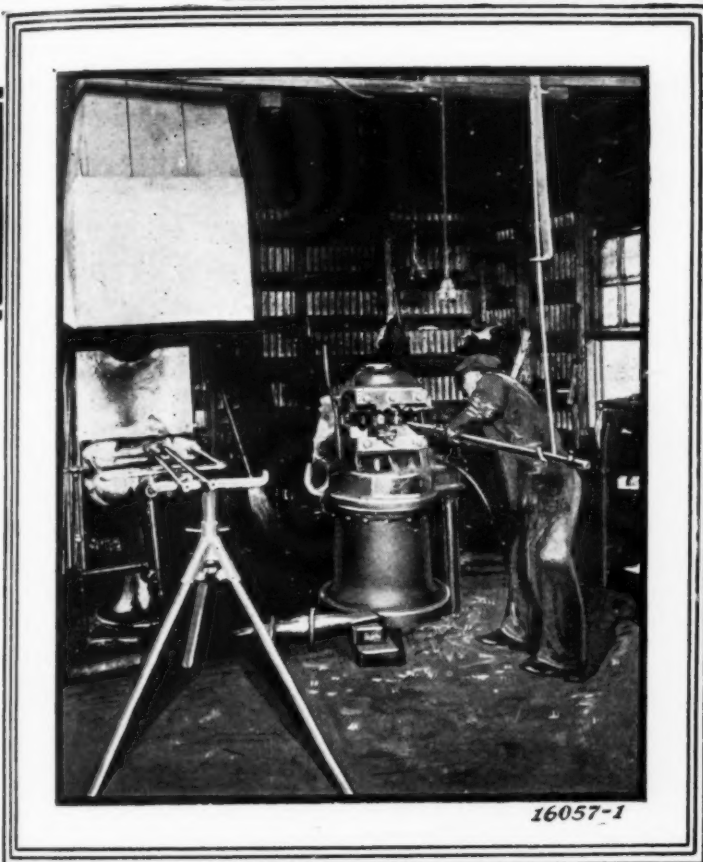
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**AUSTIN MANUFACTURING Co**  
..... ESTABLISHED 1858 .....  
400 N. MICHIGAN AVE • CHICAGO

# Put a **DIVIDEND PAYER** on the job— get a **“LEYNER” SHARPENER**



**Reduce Your Sharpening Costs 50%  
Increase Drilling Speed 20 to 30 %**

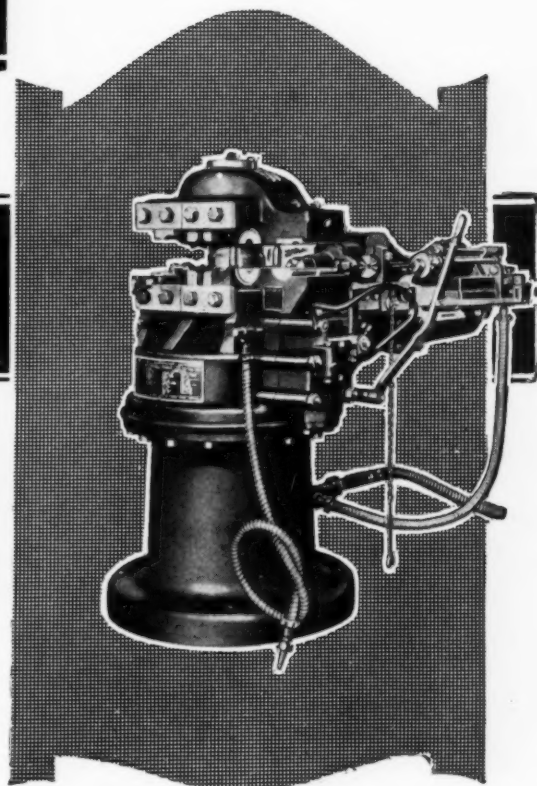
A “Leyner” Sharpener should be installed wherever two or more rock drills are being used. Machine made bits are not only better bits—sharper and more perfectly formed—but they are much cheaper to make and they do cut rock much faster.

“Leyner” Sharpeners make mechanically perfect bits and shanks. Accurate gauging permits  $\frac{1}{16}$  in. variation between the gauges of the bits of succeeding steels. “Leyner” made shanks minimize drill breakage.

**INGERSOLL-RAND COMPANY-11 BROADWAY, NEW YORK CITY.**

*Offices in principal cities the world over*

FOR CANADA REFER- CANADIAN INGERSOLL-RAND CO. LIMITED, 260 ST. JAMES STREET, MONTREAL, QUEBEC.



## **“Leyner” No. 50 Sharpener**

The “Leyner” No. 50 Sharpener will resharpen medium size steels at a rate of 65 to 120 per hour; or form new bits 25 to 80 per hour.

This sharpener can also be used for heading bolts, sharpening chisels, picks and hundreds of other tools of various shapes and sizes.

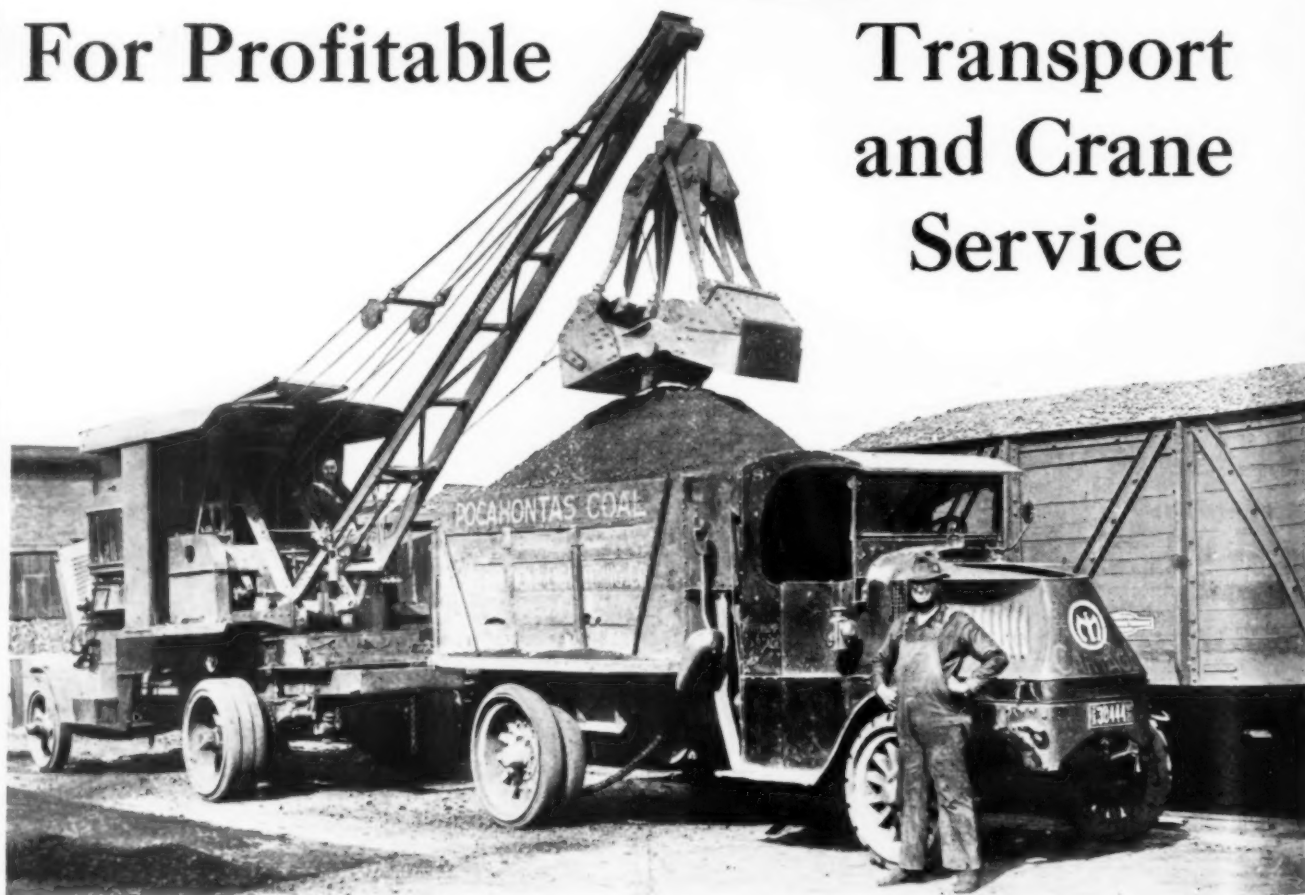
These Sharpeners are described in detail  
in Bulletin 4322

# Ingersoll-Rand



For Profitable

Transport  
and Crane  
Service



Mack Trucks, Inc.

**INTERNATIONAL MOTOR COMPANY**

25 Broadway

New York City

Eighty-five direct MACK factory branches operate under the titles of: "MACK-INTERNATIONAL MOTOR TRUCK CORPORATION" and "MACK MOTOR TRUCK COMPANY"

**PERFORMANCE COUNTS**

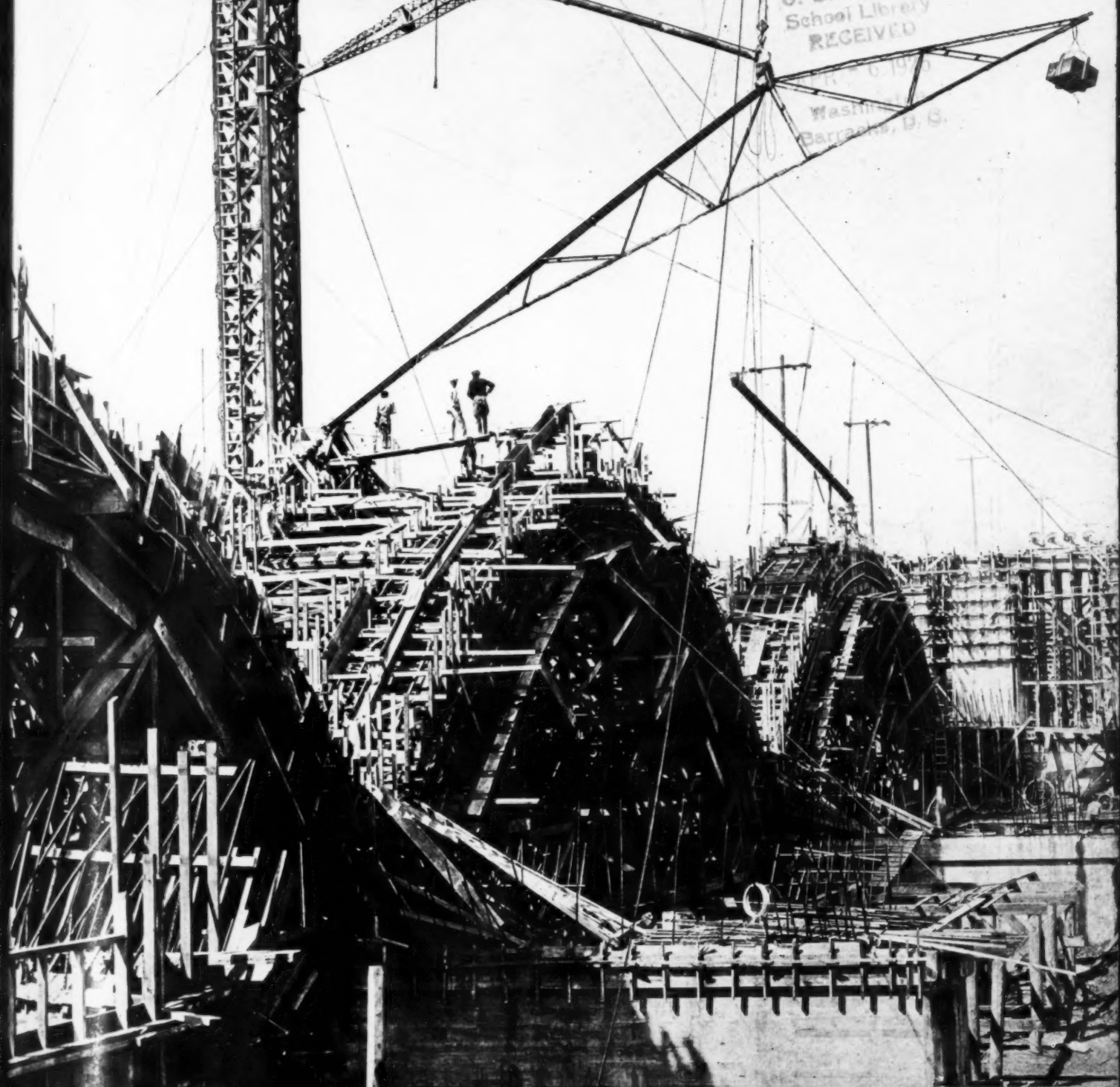


# Successful Methods

Construction · Road Making · Engineering · Industrial · Mining

U. S. Engineer  
School Library  
RECEIVED

Washington,  
D. C.



Vol. 7

July

1925

No. 7

# Western Equipment Will Stand Abuse



**T**HERE comes to every contractor a time when he must work his dump wagons to the limit in order to finish the job with a profit. At such times WESTERN dump wagons will pay for themselves. They will stand abuse.

Contractors tell us that the WESTERN is the only dump wagon that will stand up under the pounding of a large shovel. It pays to buy dump wagons that will stand abuse, if necessary.



Our catalog (S-62) explains why the WESTERN wagon is strong and easy running. Write today.

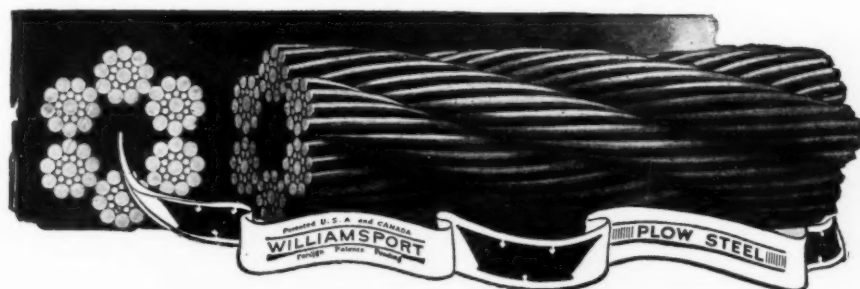
**Western**  
*That's why!*

**Western Wheeled Scraper Company**

Founded 1877

*Earth and Stone Handling Equipment*

**AURORA, ILLINOIS**



# FACTS You Should Know

about the quality, grade and strength of  
Wire Rope, cannot be hidden in

## WILLIAMSPORT WIRE ROPE

It is the only wire rope made, that shows its grade so  
that anyone may know and understand what it is.

This is the most important improvement in Wire  
Rope building given to the user in many years.

—Men who work on hazardous jobs where Wire Rope  
is used, should demand the wire rope that gives you  
this protection. It's put there especially for your bene-  
fit so that you may KNOW its grade and strength.

Why take chances on other ropes of uncertain grade  
that you cannot identify?

*Write us for interesting literature about this protection*

### Williamsport Wire Rope Company

Main Office and Works:  
Williamsport, Pa.

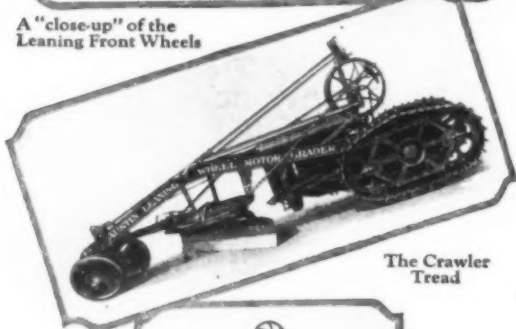
Gen'l Sales Offices:  
Peoples Gas Bldg., Chicago

# WILLIAMSPORT

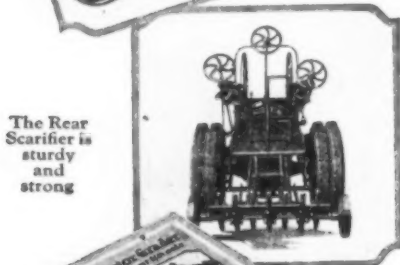




A "close-up" of the  
Leaning Front Wheels



The Crawler  
Tread



The Rear  
Scarifier is  
sturdy  
and  
strong



Please send me  
Bulletin

a Motor Grader

## The Austin Motor Grader WITH LEANING FRONT WHEELS

THE patrol system of road maintenance is generally admitted to be the best possible method of keeping earth, gravel and similar roads in good condition at all times. A road that is systematically maintained will always be a joy to those who travel over it, and will never get into such shape that it will need expensive grading.

Motorized patrol graders are becoming increasingly popular in all parts of the country, and of these motor-propelled machines the Austin Motor Grader is without doubt one of the most, if not the most, efficient.

### The Natural Grader built in the Natural Way

The operator of the Austin Motor Grader has directly under his hand all Motor and Grader Controls, and stands at the rear of the machine where every practical reason for motor and grader operating demands that he should stand. [Contrast this with other types of Motor Graders on which the operator is stationed in front of the tractor, which is not only a hot place, and a dangerous one, but also an unnatural place because the Motor Controls have to be extended out to the front where they do not belong, and the operator stands directly above the blade where no practical grader operator would ever choose to stand, and where, in the forty years road graders have been made, no operator was ever before asked to stand.]

### EQUIPMENT

The exclusive leaning front wheels, illustrated at the left, are probably the most popular feature of the Austin Motor Grader, and are alone enough to account for its remarkable efficiency. The front ends of ordinary road graders are kept from slipping sideways by the teams or tractors used to pull them. The front end of a motor grader is not hitched to anything, and, therefore, has a tendency to slip sideways, which tendency can best be overcome by the use of leaning front wheels.

These leaning wheels in combination with the crawler tread, also illustrated at the left, enable the Austin Motor Grader to work on shoulders and in ditches where a straight-wheel motor grader with ordinary rear wheels would be useless. The crawler tread is also to be preferred for use in soft or sandy soils.

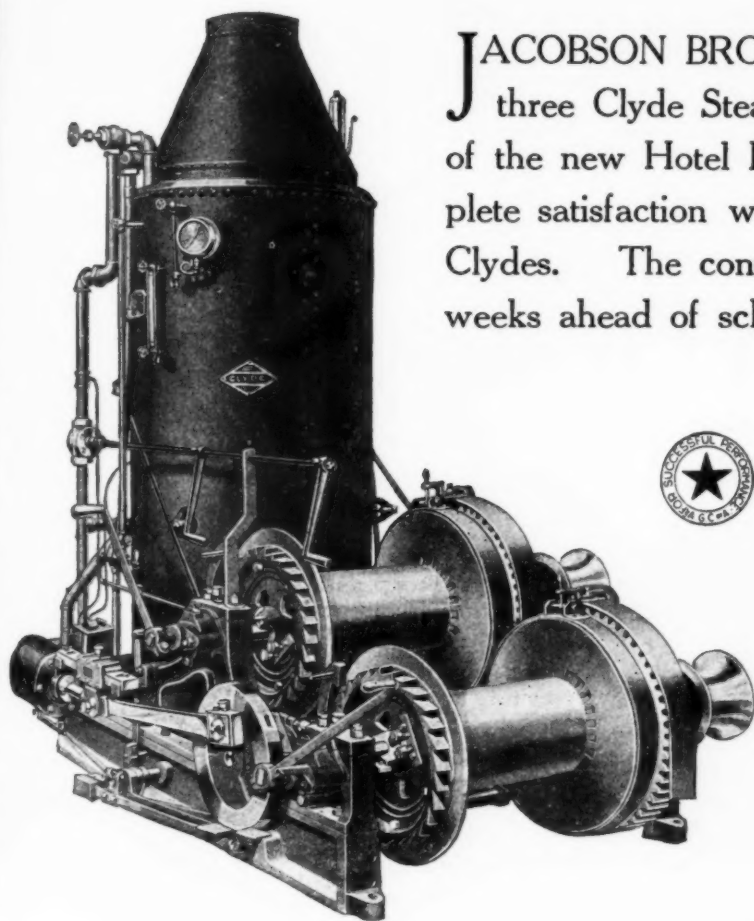
Two types of scarifier attachments are provided; the center type, which is fastened to the blade circle, and the rear type, illustrated at the left, which is intended for more difficult work.

# THE AUSTIN-WESTERN ROAD MACHINERY CO. CHICAGO

# CLYDE

## Standard Hoists and Derricks For the General Contractor

### STEAM · ELECTRIC · GASOLINE · BELT



JACOBSON BROS., General Contractors, used three Clyde Steam Hoists in the construction of the new Hotel Duluth. They express complete satisfaction with the performance of their Clydes. The contract was completed some weeks ahead of schedule.



*You'll Take Pride in Your Clyde!*

## CLYDE IRON WORKS SALES COMPANY

Sole Distributors for CLYDE IRON WORKS, Duluth, Minn.

*Stocks Carried in the Following Warehouses:*

NEW ORLEANS  
309 Magazine St.

NEW YORK CITY  
E. 136 St. and Locust Ave.

PORTLAND, ORE.  
555 Thurman St.

SEATTLE  
3410 First Ave. So.

*Branch Offices:*

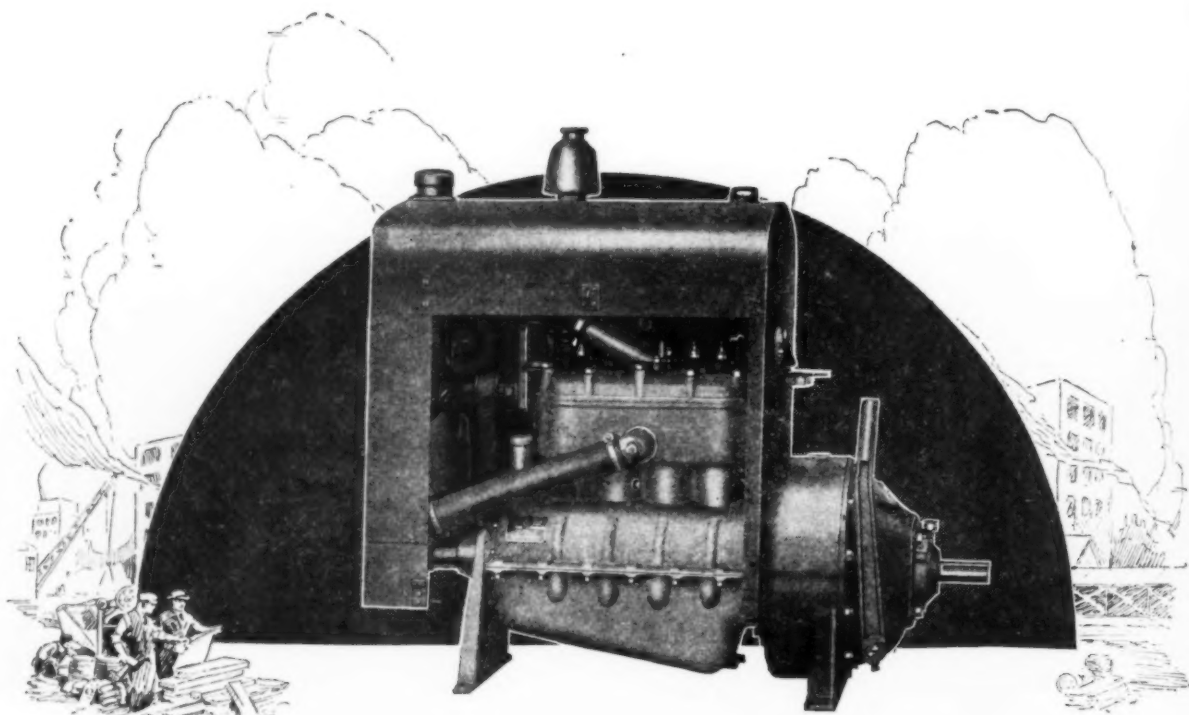
CHICAGO  
11 So. La Salle St

CINCINNATI  
1913 Union Central Bldg.

MEMPHIS  
119 Monroe Ave.

JACKSONVILLE, FLA.  
43-45 W. Forsyth St.

SAN FRANCISCO  
50 Fremont St.



## Tried and Proven Power!

Responsive power—long lived and dependable—that's the sum and substance of Le Roi Engines. Exactly why most contractors prefer Le Roi powered equipment. They consider power more and more on the basis of what it *has done* rather than what it *will do*.

Le Roi Engines are tried, tested and proven. They have behind them this unusual record of surprisingly low repair part costs:

The averaged repair part cost of all Le Rois per unit a year was:

In mixer service 90c. On hoists 57c. On pumps 89c. On Loaders and Conveyors 79c. Average of all including miscellaneous equipment 79c.

These figures are authentic and cover the past four years serving particularly every type of equipment on which power ranging from 3 to 15 H.P. is adaptable.

Le Roi Engines are preferred because they have performed. There are many thousands of them in daily service proving their claim. The fact that they stay *active* on the job longer is the best proof of their "economy."

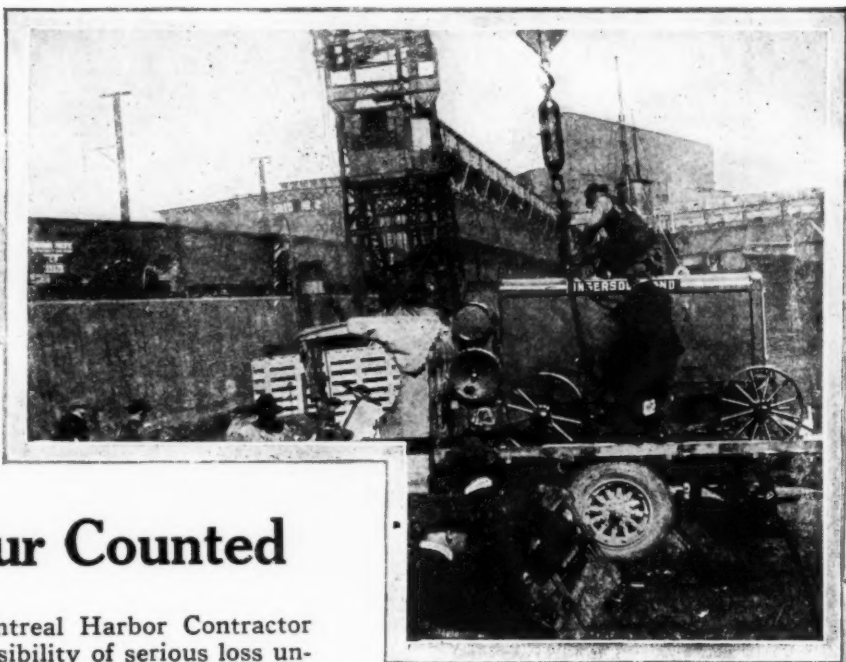
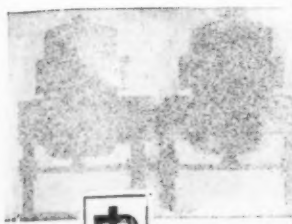
Le Roi Company, Milwaukee

# LE ROI ENGINES

for dependable power!



## Ingersoll-Rand Service Saved Harbor Contractor \$1100 in Barge Rent Alone



### Every Hour Counted

Late last fall a Montreal Harbor Contractor was faced with the possibility of serious loss unless he could finish his contract before the freeze up.

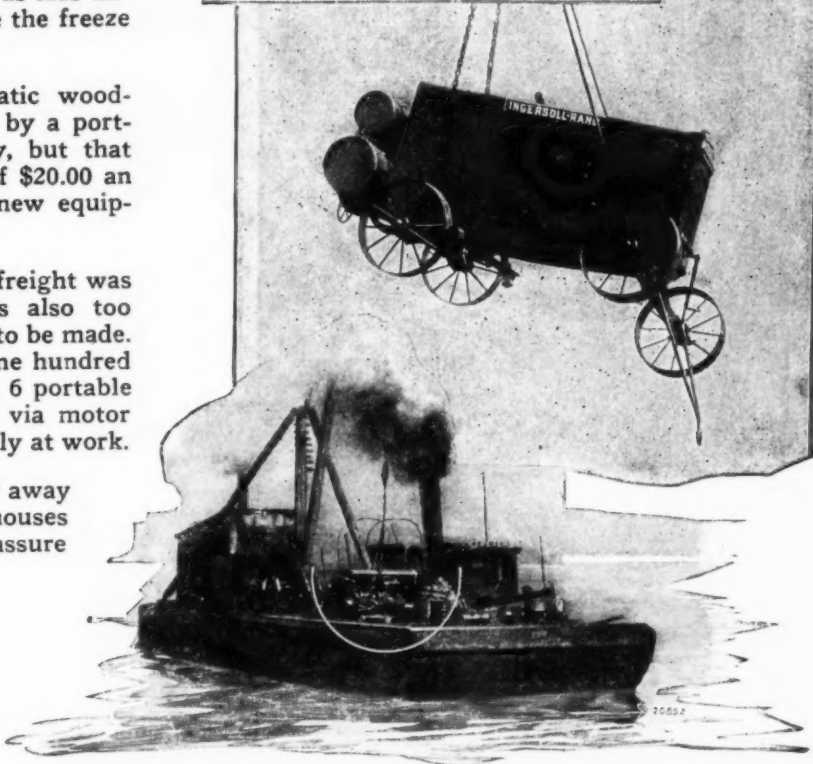
Investigation showed that pneumatic wood-borers and driftbolt drivers operated by a portable compressor would save the day, but that expenses would pile up at the rate of \$20.00 an hour for barge rent alone until the new equipment arrived.

The best delivery promised by fast freight was seventy-two hours, and express was also too slow and costly for the saving in time to be made. A telephone call to our warehouse, one hundred miles away, at 5 p. m., brought a 7 x 6 portable compressor to the job next morning via motor truck and by noon this unit was actually at work.

Ingersoll-Rand service is only as far away as your telephone. Well located warehouses and a corps of skilled field men, assure prompt service on rush jobs.

INGERSOLL-RAND COMPANY  
11 Broadway, New York City

Offices in principal cities the world over.  
For Canada Refer—Canadian Ingersoll-Rand Co.,  
Limited, 260 St. James Street, Montreal, Quebec.



# Ingersoll-Rand

## *"We Have Standardized on Sterling"*

*Avery Brundage*

Five or six years ago after a thorough investigation, we adopted the Sterling wheelbarrow as our standard equipment, based on quality and its superior service, and have used them exclusively ever since.

Very truly yours,

*Avery Brundage*

The construction of the Sterling wheel makes it the easiest wheeling and strongest wheel obtainable. Brackets are malleable and keyed to axle. Hub is steel equipped with self-oiling bearings. It has 10 spokes flush riveted.



Sterling carts and wheelbarrows are built special for the contractor, and will stand the gaff.

# STERLING WHEELBARROW COMPANY

STERLING ON A WHEELBARROW MEANS MORE THAN STERLING ON SILVER

Milwaukee

MANUFACTURED FOR THE EUROPEAN MARKETS BY —  
STERLING FOUNDRY SPECIALTIES LTD STERLING WORKS, BEDFORD, ENGLAND

Wisconsin

Sold by leading equipment dealers everywhere





2—Sailing along on a 17 mile pipe line job between Joliet and Aurora, Illinois. This machine was put on this long job in preference to larger—and clumsier—machines which the Western United Company had on hand.



4—In close quarters. A head on view of a Barber-Greene coming out of a narrow Chicago alley. Here's a tight corner where hand labor has always reigned supreme. And remember there's a lot of real digging speed coupled with Barber-Greene handling ease.

Tear this out and send for the paper "The Use of Small Trenching Machines," delivered by A. G. Ford of the Western United Gas & Electric Light Co., before the 21st convention of the Illinois Gas Assn.

Name.....

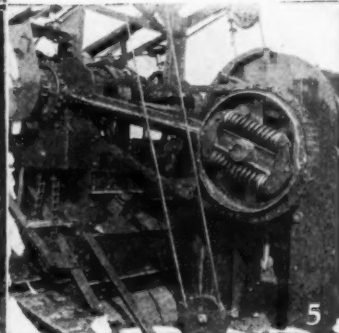
Address.....

City.....

State.....

1—Here's how the Barber-Greene vertical boom digs. It's down almost 7 feet here. This ditcher is working for the Birmingham Electric Company.

3—A Barber-Greene cutting trench for curb and gutter forms through an outcrop of coral rock in Florida. The speed here is but 3 feet per minute. But the Barber-Greene cut through it.



5—This overload release sprocket guards the Barber-Greene from the shocks of encountering hidden obstructions. It releases and locks automatically. When the load on the buckets is removed the sprocket automatically starts them digging again.

## Here's Why They're Buying Barber-Greenes

The East Bay Water Company, Oakland, California, dug fourteen miles of 18" by 3 1/4" ditch at a cost of 4.79 cents per lineal foot with their Barber-Greene. This figure includes all possible digging items—interest on the investment, depreciation, upkeep, operation, incidental labor and cost of moving the machine from job to job.

Most of the digging was short run stuff. That makes the low cost per lineal foot still more remarkable. And it makes it easier to see why more and more companies are buying Barber-Greenes.

A Barber-Greene is fast on its feet. This handiness goes farther than dodging in and out of tight corners. It is translated into real digging speed.

A Barber-Greene walked through 5,000 lineal feet of trench during its second day on a Texas pipe line job.

That's another reason why they're buying Barber-Greenes. And there are still more.

The vertical boom digs straight down. The Barber-Greene

seldom loses more than its own length in digging up to an obstruction. And the vertical boom digs service laterals flush with the main ditch.

The full length crawlers turn the Barber-Greene in its own length and permit it to trench across rough or soft ground. An overload release sprocket protects the ditcher's mechanism from the shocks of encountering hidden obstructions. It makes the Barber-Greene as careful as human hands in digging around buried pipe.

That's why they're buying Barber-Greenes. The Barber-Greene is a fast, hard-hitting, comparatively small machine. It's easy to handle. It's easy to hold to line and grade. It digs a clean ditch. And it's fast on its feet.

Yes, it's easy to see why they're buying Barber-Greenes. Filling out the coupon in the upper right hand corner will give you a more complete story. It will bring you A. G. Ford's paper, "The Use of the Small Trenching Machine," and the latest Barber-Greene collection of ditching job pictures and information.

BARBER-GREENE COMPANY—Representatives

in 50 cities—530 W. Park Ave., Aurora, Illinois

**BARBER**

**GREENE**

Portable Belt Conveyors

Self Feeding Bucket Loaders

Coal Loaders . . . Automatic

Ditch Diggers . . . Coal Feeders



# KOEHRING

## It's as Important to Buy a Mixer "Right"—as it is to Buy the Right Mixer

THE two go together because the mixer of stabilized, unquestioned quality is never forced to make unjust price or "trade" concessions, and in consequence has quick-call, unstinted service behind it when it is actually at work on your job.

No matter where you operate your Koehring, in the sales territory of the representative from whom you bought your Koehring, or in some other representative's territory, there will be the liberal Koehring service behind your Koehring mixer.

The Koehring Company cuts neither Koehring Heavy Duty construction nor Koehring service in favor of price!

The Koehring Company is more vitally interested in maintaining the Koehring as the mixer of *Profitable Performance*, than in making "price" sales to any individual or in any territory.

Write for Paver Bulletin, No. P. -17

### KOEHRING COMPANY

PAVERS, MIXERS—GASOLINE CRANES,  
DRAGLINES AND SHOVELS  
MILWAUKEE, WISCONSIN

Sales Offices and Service Warehouses in principal cities

Foreign Department, Room 1370, 50 Church St.,  
New York City

Canada, Koehring Company of Canada, Ltd.,  
105 Front St., East, Toronto, Ontario

Mexico, F. S. Lapum, Cinco De Mayo 21, Mexico, D. F.

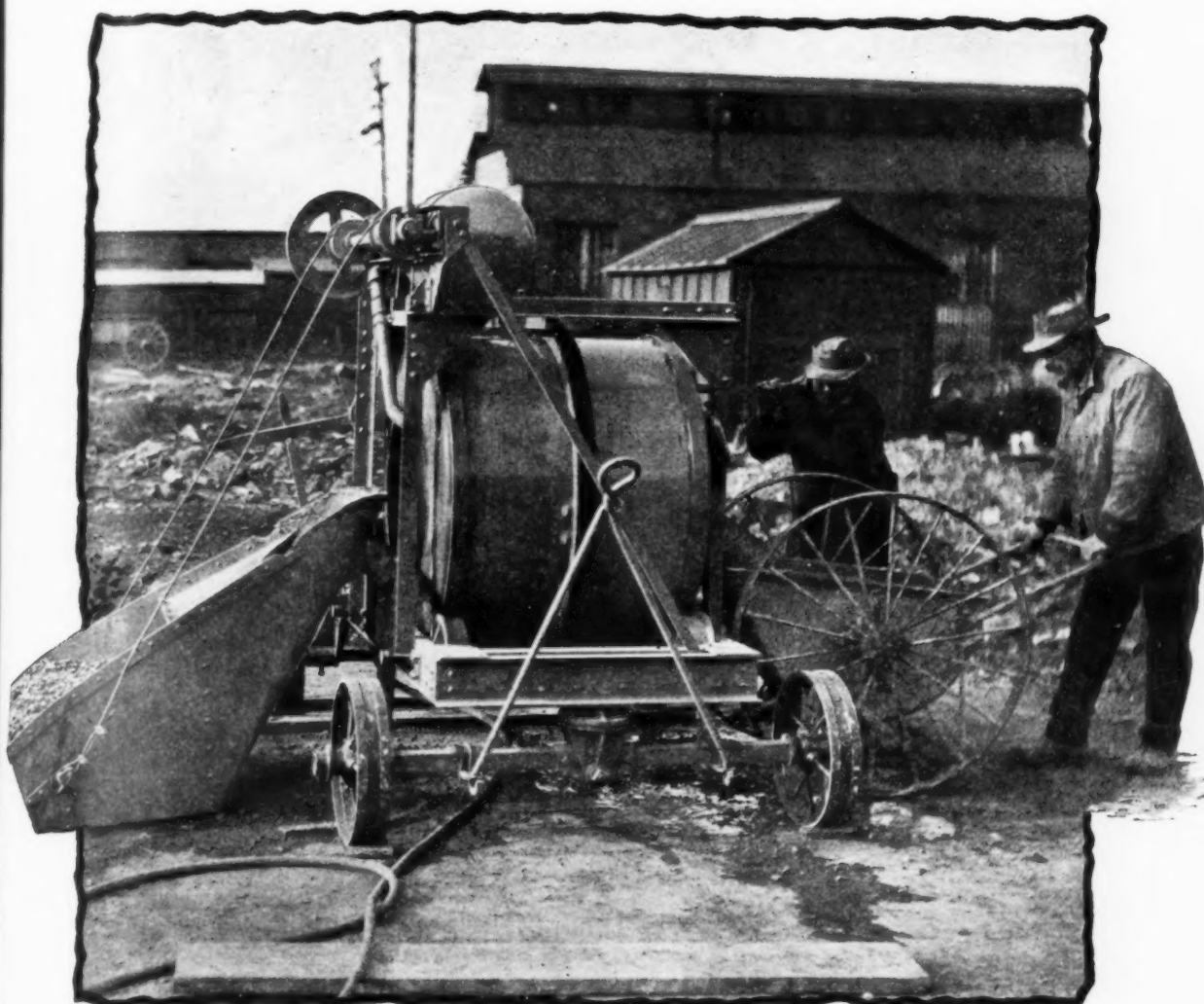
**Paver Capacities**—7, 13, 21 cu. ft. of Mixed Concrete. Auxiliary equipment and choice of power to suit individual needs.

**Construction Mixers**—10, 14, 21, 28 cu. ft. of Mixed Concrete. Steam, gasoline or electric power. Mounted on trucks or skids. Rubber tired wheels optional. 28-S on skids only.

**Dandle Light Mixer**—7 cu. ft. Mixed Concrete. Two or four cylinder gasoline engine. Power charging skip, or low charging hopper and platform. Rubber tired steel disc wheels.



A2803-I



One of the Austin Company's seven Lakewoods

## You'll Find in a Lakewood

all the features you've been looking for combined.—Greater compactness—and Speed in charging and discharging—real drum capacity—levers banked for one man operation—greater strength—longer life.

A comparison of specifications will show it. A Lakewood Mixer on your job will prove it.

### USE THE COUPON

Export Office: 30 Church St.  
New York City

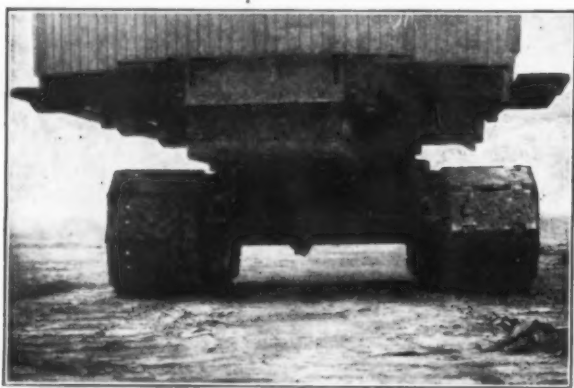
**THE LAKEWOOD ENGINEERING CO.**  
CLEVELAND, OHIO



Please send full information on the LAKEWOOD 207-S to:

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_

The Lakewood Engineering Company  
Station G., Cleveland, O.



### Has More Clearance Underneath

Steers in Large or Small Radius Without Stopping  
—Can be Towed by One Motor Truck—Will Walk  
Right Up a 30% Grade—Will Travel 1½ Miles  
per Hour—Can Dig Closer at Either End—Will  
Not Damage Pavements—Has Self-cleaning  
Treads and Drive Rollers—Has Tread Pins that  
Need No Lubrication—The Most Durable Truck  
Ever Built.

The THEW CENTER DRIVE Does It

## What Does This Prove?

A real estate company of Beverly, Ridge, California, rented a certain make of power shovel for development work in hard lava formation.

It fell down hard and was ordered off the job.

Then another make tried it—and quit after breaking two booms and ruining three dipper sticks.

Meanwhile a Thew Gasoline Shovel, a ¾ yard Type O, belonging to Hake and Sweet of Los Angeles, was going strong on the job, two shifts a day without a grunt.

Then the real estate people looked for another Thew to rent.

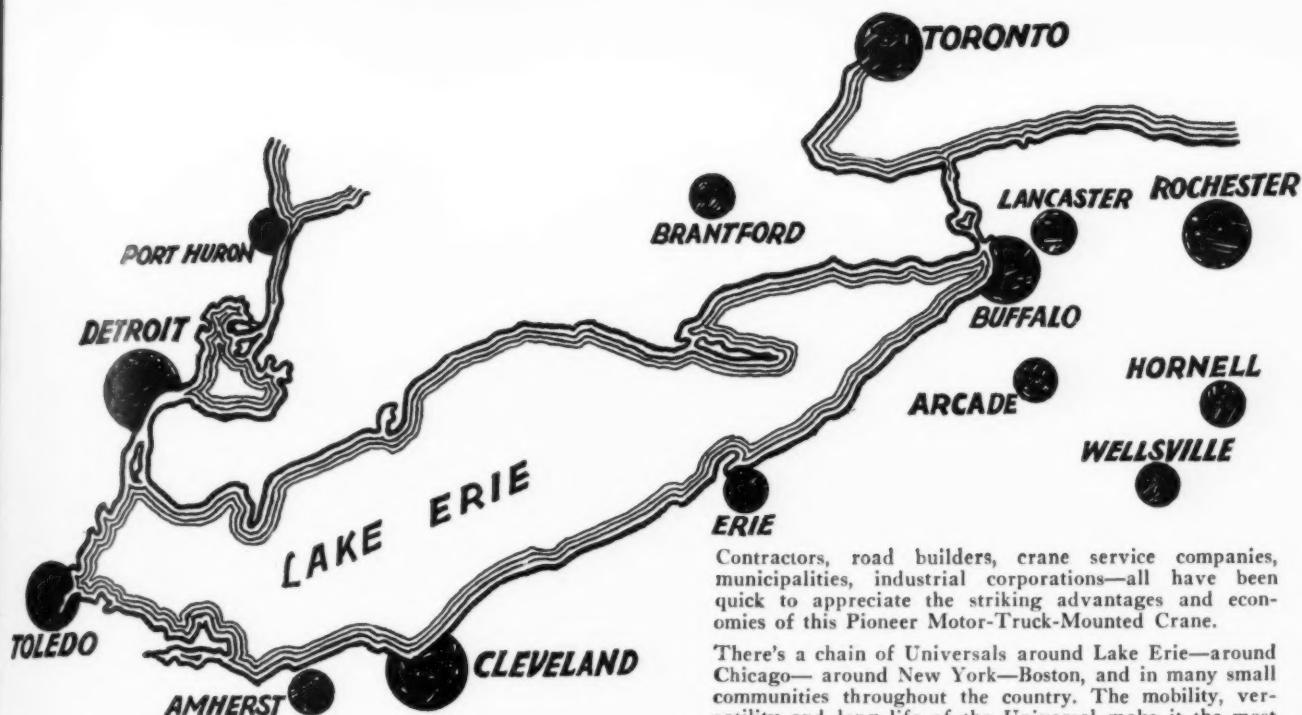
This kind of thing is an old story with Thew Shovels. It's just another example of the thing that makes a Thew Owner a Thew Booster for life.

THE THEW SHOVEL COMPANY,  
LORAIN, OHIO

# Thew Lorain Shovels

## Dig Faster—Last Longer





Contractors, road builders, crane service companies, municipalities, industrial corporations—all have been quick to appreciate the striking advantages and economies of this Pioneer Motor-Truck-Mounted Crane.

There's a chain of Universals around Lake Erie—around Chicago—around New York—Boston, and in many small communities throughout the country. The mobility, versatility and long life of the Universal make it the most profitable crane-investment obtainable today. Low operating and maintenance costs, faster operating speed, greater earning power, 100% quality construction throughout—are some of the advantages of the Universal.

Wire or write for Bulletin 28- L.L.

## A UNIVERSAL Chain Around Lake Erie—Also

A 5-ton capacity locomotive crane  
Full circle swing—Rate 6 R.P.M.  
44-hp. Waukesha Gasoline Engine  
Mount it on any 5-ton motor truck  
(Pat'd) Jacks and Stirrups supplied  
to relieve rear truck springs of  
operating loads

Can travel with load suspended  
No outriggers required  
Transferable readily to crawler and  
other mountings  
Operating weight equal to 5-ton load  
plus body allowance  
Operating speed to equal or out-  
handle many 3/4-yd. cranes.



**The Universal Crane Co.**  
959 Swetland Bldg., Cleveland, Ohio

*Representatives everywhere*

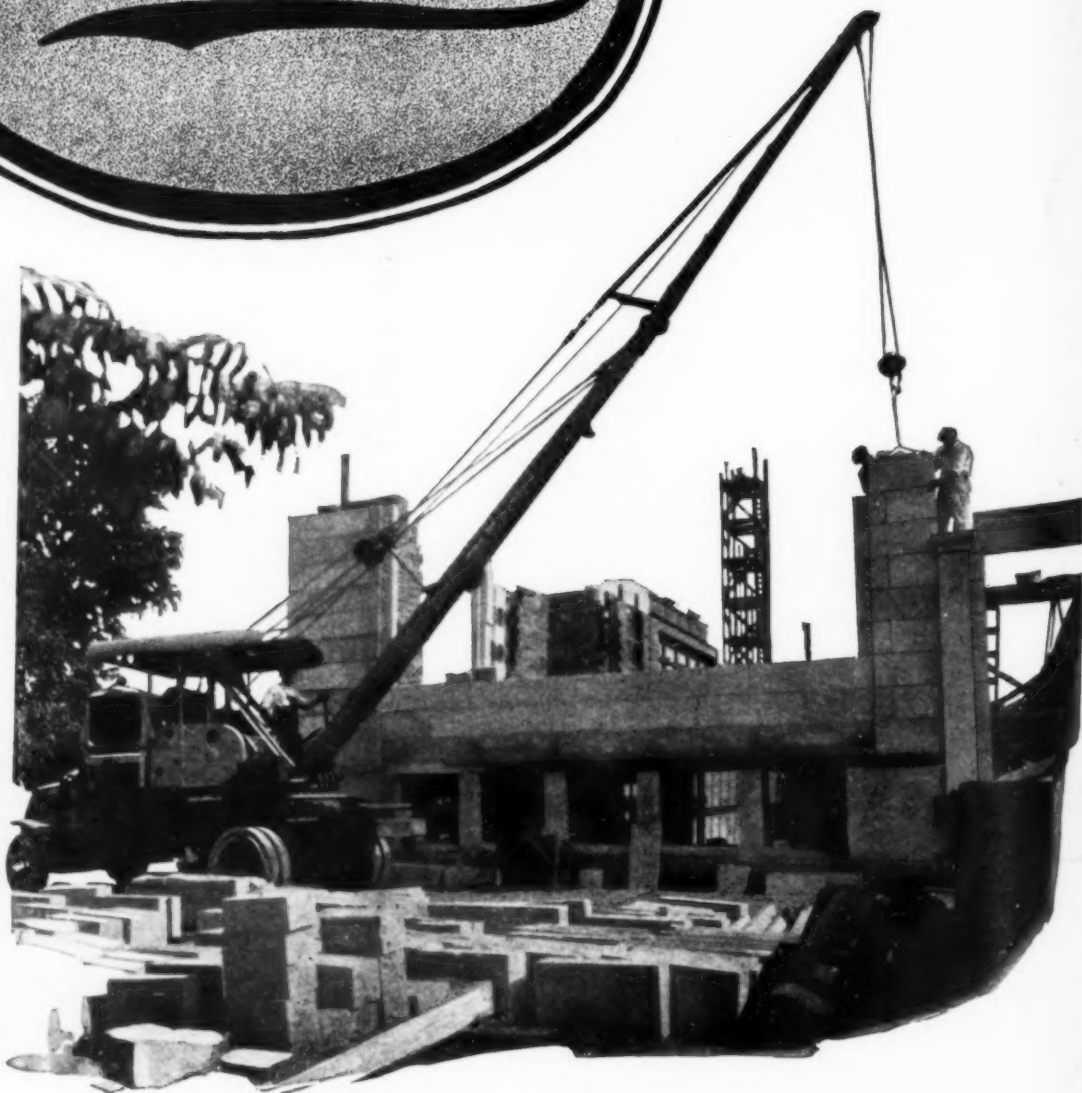
You can reach your local Universal Crane Man by  
'phoning the "Universal Crane Company" in:—

New York	Cleveland	Pittsburgh
Chicago	Minneapolis	Denver
Boston	Cincinnati	New Orleans
	Los Angeles	





Mounted on a MACK truck, this crane has given four years of continuous service. It was the first Universal to be mounted on a motor truck. Equipped with a 24-foot boom and 16-foot extension making an over-all length of 40 feet, this unit recently took the place of a gang of 20 men, placing all the steel work and hoisting and setting each piece of the expensive cut stone in the building illustrated.



Mack Trucks, Inc.

**INTERNATIONAL MOTOR COMPANY**

25 Broadway

New York City

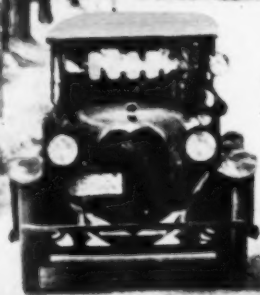
Eighty-eight direct MACK factory branches operate under the titles of: "MACK-INTERNATIONAL MOTOR TRUCK CORPORATION" and "MACK MOTOR TRUCK COMPANY."

**PERFORMANCE COUNTS**



# Successful Methods

Construction - Road Making - Engineering - Industrial - Mining

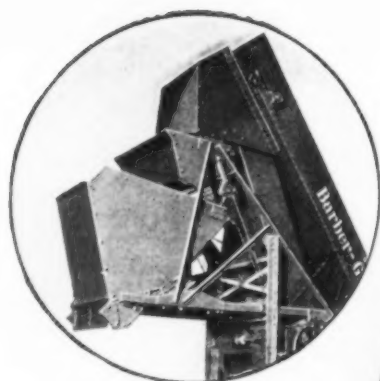


Vol. 7

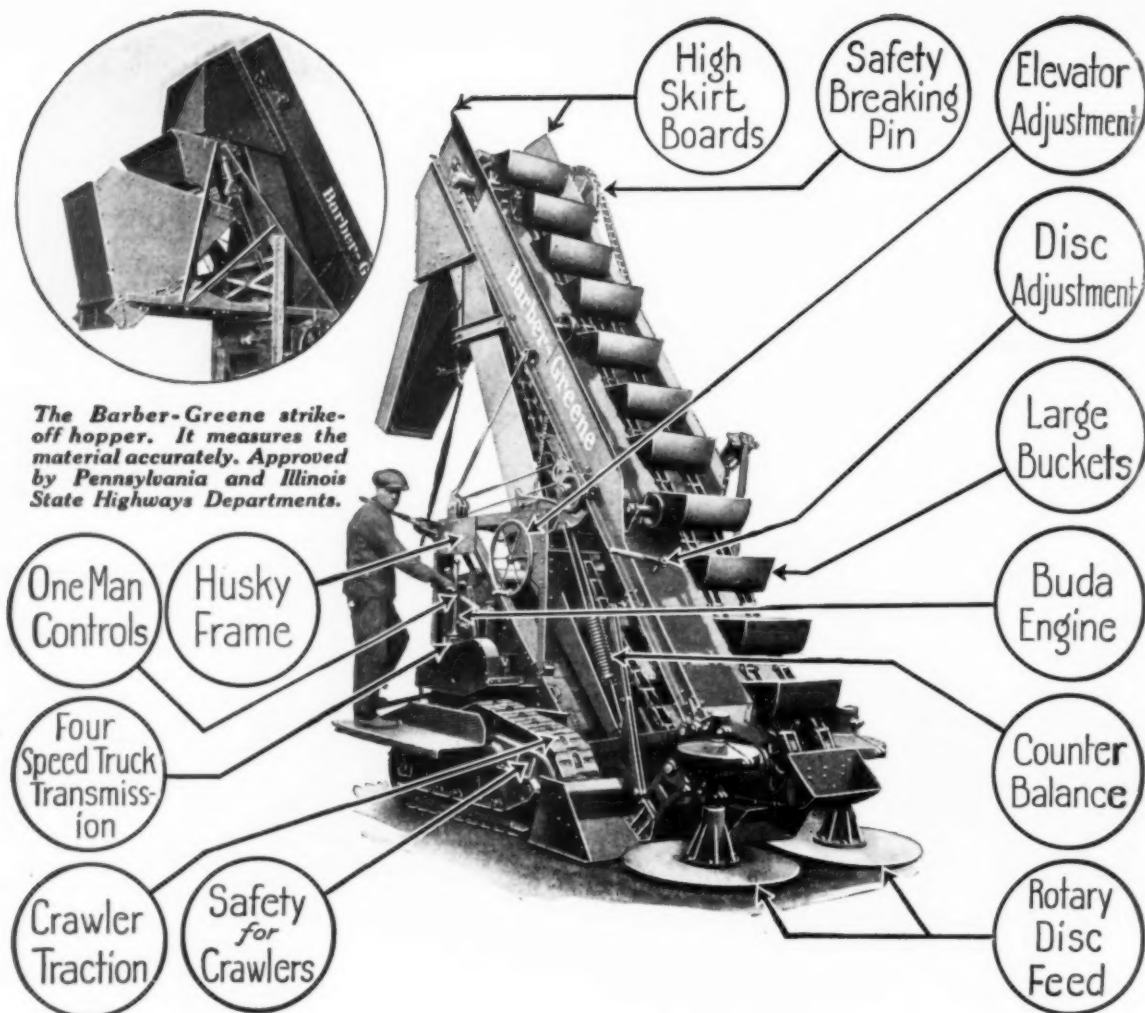
August 1925

No. 8





*The Barber-Greene strike-off hopper. It measures the material accurately. Approved by Pennsylvania and Illinois State Highways Departments.*



## The Arrows Point the Way to Lower Loading Costs

Here is a picture of the Barber-Greene Bucket Loader. The arrows show what makes the wheels go around.

The Barber-Greene is built to load any loose material, and to load it fast. That calls for a good feeder and for big buckets. Then to make that loading speed of value to the user, the Barber-Greene is built with a husky frame and safety overload features.

Those are the primary points. The secondary include such refinements as the floating boom, the strike-off hopper, the grouped controls, the adjustable feeder discs, and similar features that make for ease of handling, and a broader field of work.

Besides loading and batching Barber-Greene's are being swung more and more into such tough jobs as sub-grading

and excavating. The disc feeds can be set accurately to various depths and angles. They leave a smooth, true grade behind them.

That same feature eliminates all shovel clean-up on loading from piles.

The fact that Barber-Greene's have handled tough digging and loading jobs successfully indicates the sturdiness of their construction. The new Barber-Greene floating boom makes this resistance to strains and wear even greater.

We know of at least twenty different uses for this Barber-Greene. They are illustrated by actual job pictures and data in our new booklet, "Contracting with Barber-Greene's." If you do any loading work at all, this booklet with its accurate information may show you the way to lower costs. Send for a copy. It's free to those interested.

BARBER-GREENE COMPANY—Representatives in 50 Cities—530 W. Park Ave., Aurora, Illinois

# BARBER

Portable Belt Conveyors

Coal Loaders . . . Automatic



# GREENE

Self Feeding Bucket Loaders

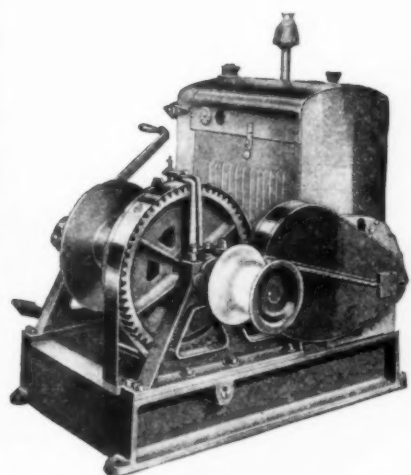
Ditch Diggers . . . Coal Feeders

# CLYDE

## Standard Hoists and Derricks

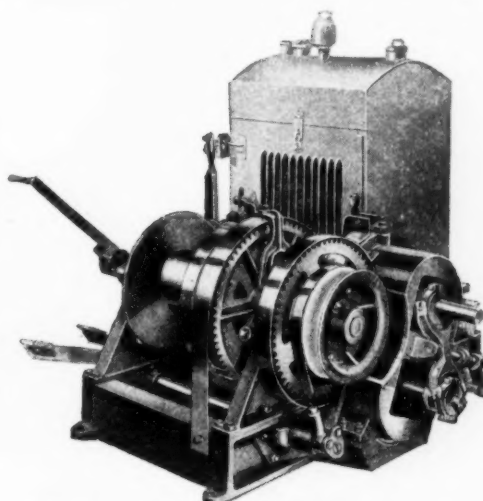
### For the General Contractor

#### STEAM · ELECTRIC · GASOLINE · BELT

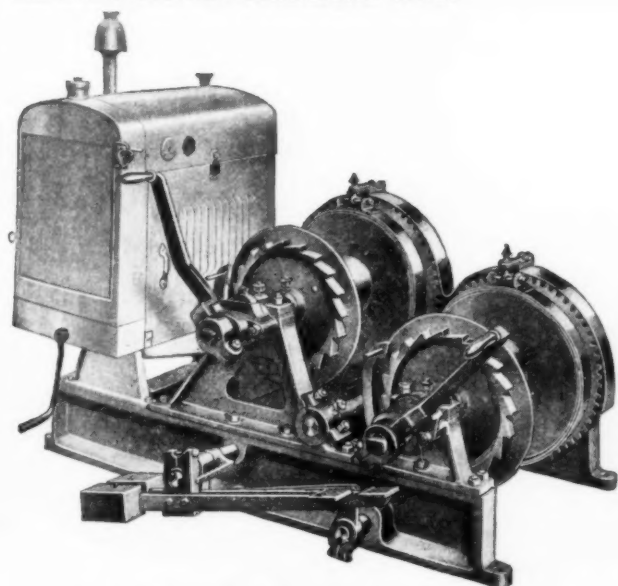


One Drum Gasoline Contractors' Hoist

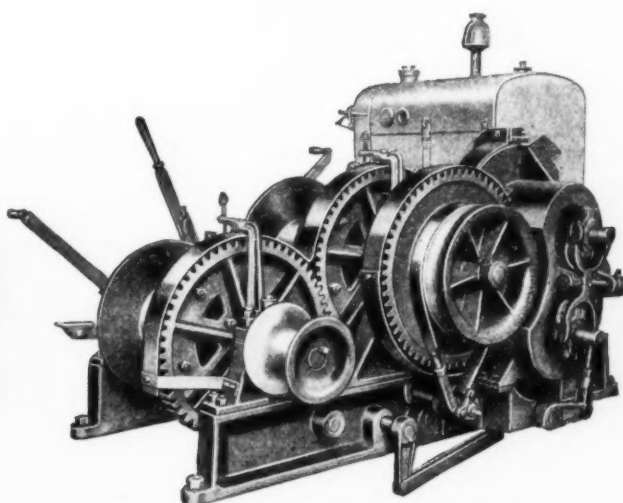
You will find illustrated a group of Clyde gasoline units, designed to meet every need of the contractor or builder. A complete range of sizes.



One Drum Gasoline Builders' Hoist



Two Drum Gasoline Contractors' Hoist



Two Drum Gasoline Builders' Hoist

The home office or any branch will be pleased to give you detailed information as to construction and operating costs at any time.

"YOU'LL TAKE PRIDE IN YOUR CLYDE"

## CLYDE IRON WORKS SALES COMPANY

Sole Distributors for CLYDE IRON WORKS, Duluth, Minn.

NEW ORLEANS  
309 Magazine St.

Stocks Carried in the Following Warehouses:  
NEW YORK CITY  
E. 136 St. and Locust Ave.

PORTLAND, ORE.  
555 Thurman St.

SEATTLE  
3410 First Ave. So.

CHICAGO  
11 So. La Salle St

CINCINNATI  
1913 Union Central Bldg.

Branch Offices:  
MEMPHIS  
119 Monroe Ave.

JACKSONVILLE, FLA.  
43-45 W. Forsyth St.

SAN FRANCISCO.  
50 Fremont St.

# Making Money with Westerns



*Western 12-yard Dump Cars Building the Edgewood-Fulton Cut-Off.*



**Western**

*That's why!*

**T**HE installation of Western dump cars of various sizes on the new Illinois Central Edgewood-Fulton Cut-Off is almost 100 percent. Contractors have learned from experience that they can *make more money with Westerns*.

If you haven't used Western Dump Cars, work a few along with your others and note the difference.

WRITE TODAY.

**Western Wheeled Scraper Company**

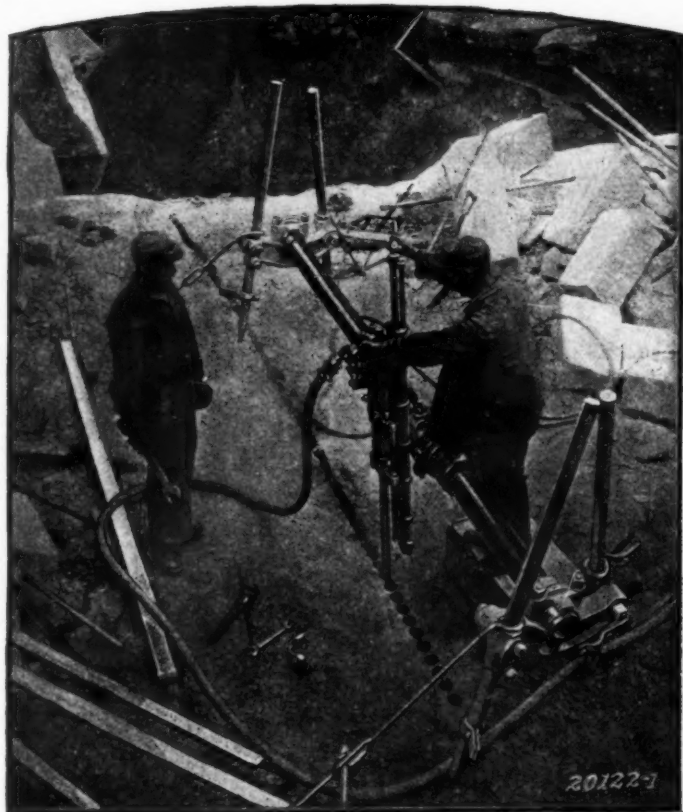
Founded 1877

*Earth and Stone Handling Equipment*

AURORA, ILLINOIS



# Broaching or Channeling *with* Hammer Drills



## 22 SQUARE FEET OF CHANNEL CUT IN GRANITE IN 8 HOURS

22 square feet of cut is the daily average of each "Leyner-Ingersoll" X-70 Drill at the Wetmore and Morse Quarry at Barre, Vermont. Their piston drills average only eight square feet of cut per day.

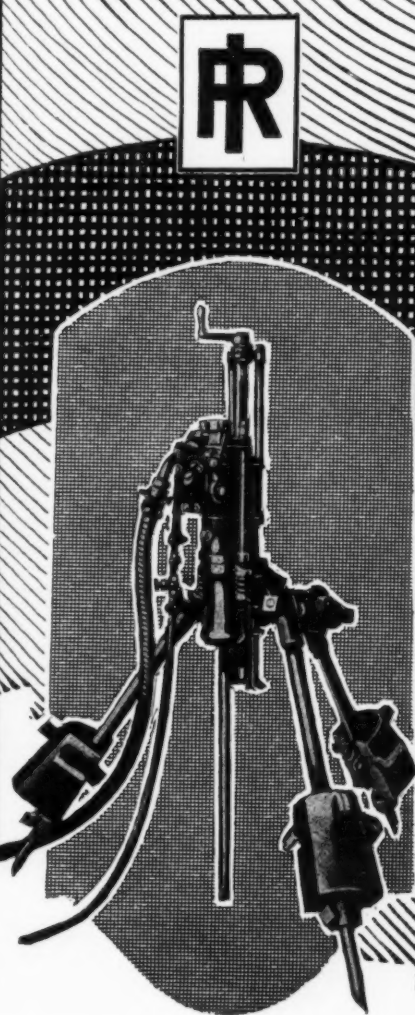
The X-70 mounted on a 5½" quarry bar is ideal for both drilling and broaching. It is easy to handle, cheap to operate and very effective.

*Slate Quarries are also adopting this method of channelling.*

INGERSOLL-RAND COMPANY-11 BROADWAY, NEW YORK CITY.

*Offices in principal cities the world over*

FOR CANADA REFER-CANADIAN INGERSOLL-RAND CO. LIMITED, 260 ST. JAMES STREET, MONTREAL, QUEBEC.



*This powerful X-70 hammer drill is doing the work of three piston drills in many quarries.*

*It is durable, economical and easy to operate.*

*Request Bulletin 4158.*

# Ingersoll-Rand

143-LI



## *Look to the engine!*

The right power for the right mixer is an all-important factor. *Look to the engine!* Consider the power on the basis of how it has performed.

Speed in handling materials—rugged build—Power; these tell your mixer story and regulate the performance. They act as your profit barometer on concrete work. But remember—to turn out large yardage consistently, the engine must be “power-full” and dependable.

Le Roi's claim to dependable power is an earned one. During the past four years all Le Roi En-

gines on concrete mixers showed an average repair cost of only 90 cents per unit a year.

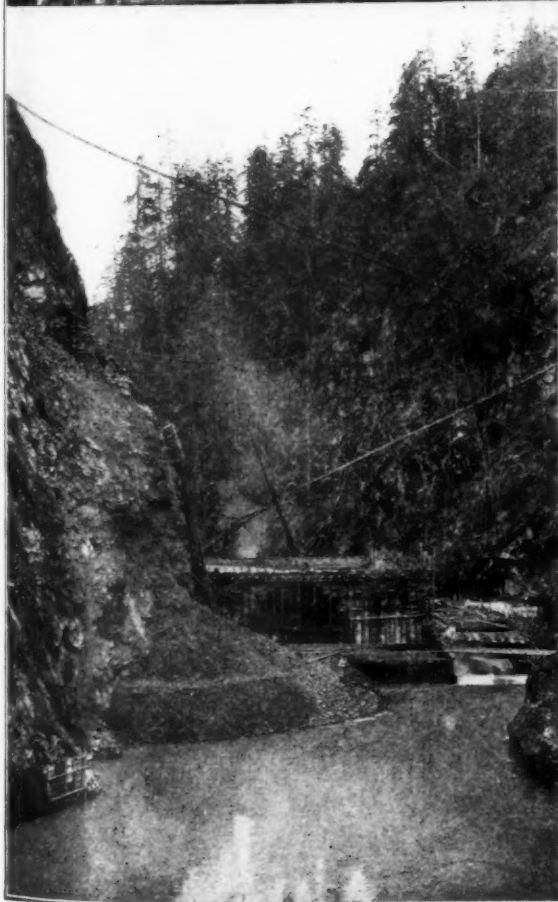
The significant fact about the Le Roi is its surprisingly low average repair part cost per year. This assures a lower operating and maintenance cost than other engines of this type can equal.

Look to the Le Roi for dependable power and long life.

**Le Roi Company, Milwaukee**

# **LE ROI ENGINES**

**for dependable power!**



## You See Here One of the Greatest Power Projects Now Under Construction

The Cushman Dam being built under the direction of A. Guthrie & Co. is one of the outstanding dam projects in America and is being built for the city of Tacoma.

It is a hazardous job, one in which no chances must be taken.

Every foot of wire rope on the job is Williamsport, Telfax Tape marked, Factory certified.

Engineers of any great importance are insisting more and more on "Williamsport" and the protection it affords the user.

They find it unprofitable to take chances on ropes of unknown grade.

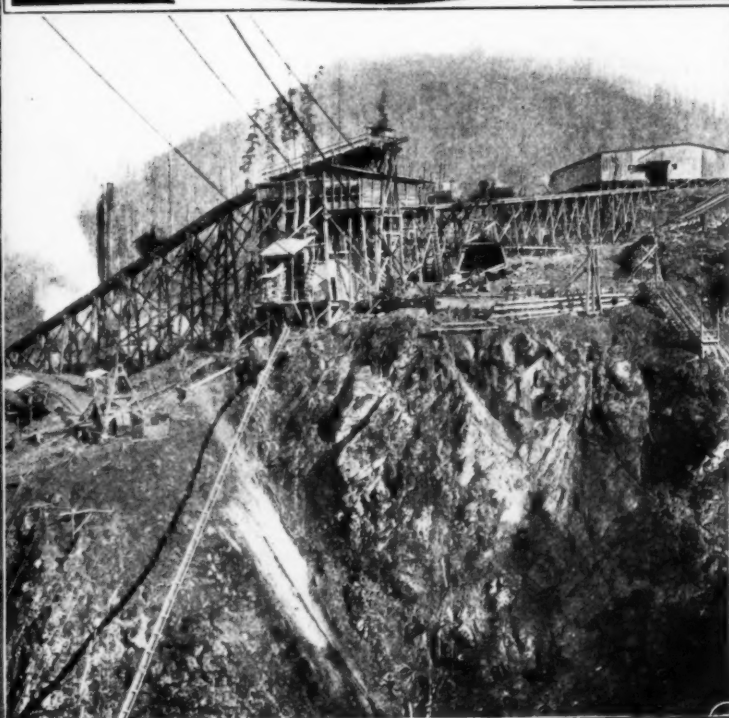
Are you going to wait for a serious accident before you do likewise? If so, Why?

*Write for interesting  
illustrated literature.*

## WILLIAMSPORT WIRE ROPE COMPANY

Main office and works  
Williamsport, Pa.

Gen'l Sales offices  
Peoples Gas Bldg., Chicago





## "We Like the Service"

C. A. Moses Construction Co.

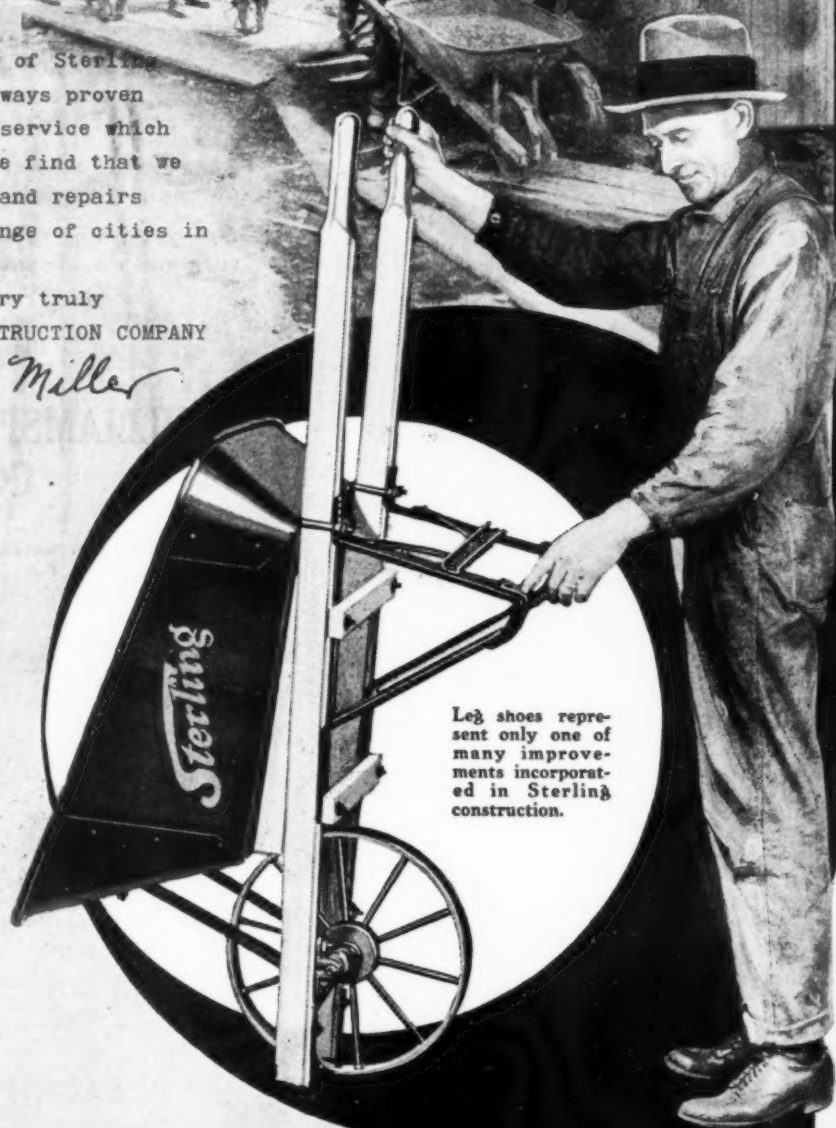
Aside from the quality of Sterling wheelbarrows which have always proven satisfactory, we like the service which goes with your product. We find that we can secure your equipment and repairs quickly within the wide range of cities in which we operate.

Yours very truly

C. A. MOSES CONSTRUCTION COMPANY

*J. D. Miller*

The C. A. Moses Construction Co. are national builders, and they, like many other large operators, must have complete and prompt service. The wide distribution of our product and the interchangeability of Sterling parts make it possible to standardize this important equipment to advantage.



Leg shoes represent only one of many improvements incorporated in Sterling construction.

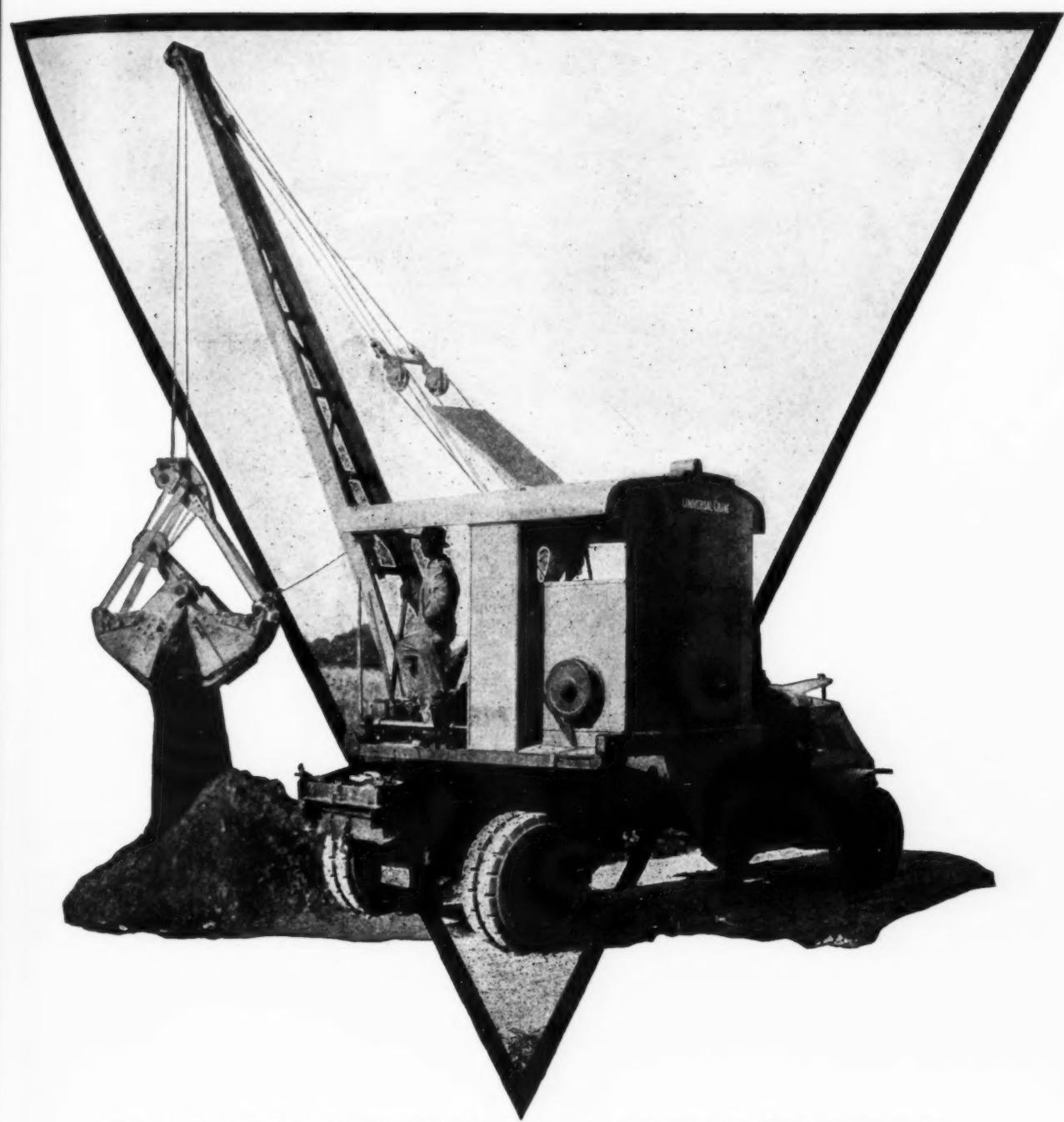
# STERLING WHEELBARROW COMPANY

STERLING ON A WHEELBARROW MEANS MORE THAN STERLING ON SILVER

Milwaukee

MANUFACTURED FOR THE EUROPEAN MARKETS BY:  
STERLING FOUNDRY SPECIALTIES LTD. STERLING WORKS, BEDFORD, ENGLAND

Wisconsin



This is Chas H. Fry Construction Co.'s Universal mounted on a Mack truck. It is cutting a cross drain through an old road, packed hard by years of heavy traffic. In less than **ONE HOUR** from the first bite at the hard surface, the crane and three men had completed the trench, set and cemented the heavy concrete pipe and refilled the excavation (a good day's work for six men and a foreman under ordinary circumstances). Exactly one hour and fifty-five minutes after the drainage job, the crane was at work on another excavation more than twenty-five miles distant. This is one of several hundred Universal Cranes in service.

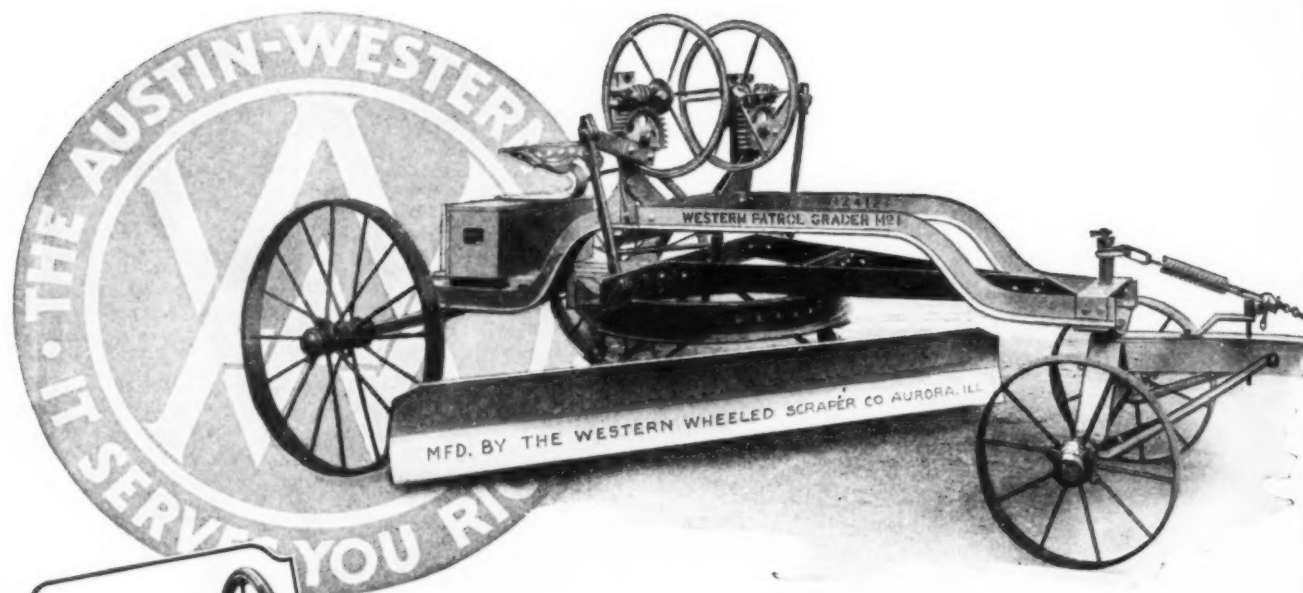
THE UNIVERSAL CRANE CO., 914 Swetland Bldg., Cleveland  
*Representatives Everywhere*



THE UNIVERSAL CRANE CO.  
914 Swetland Bldg., Cleveland

Kindly send me Bulletin 28 and complete  
information about the Universal Crane.

Name.....  
Company.....  
Address.....  
1241 SM



## Patrol Graders with Lost Motion Left Out

**L**OST MOTION may well be called the curse of Patrol Graders, so the elimination of all lost motion from the 1925 Little Western, Westford, and Western No. 1 Patrol Graders marks a real achievement in the construction of maintenance equipment.

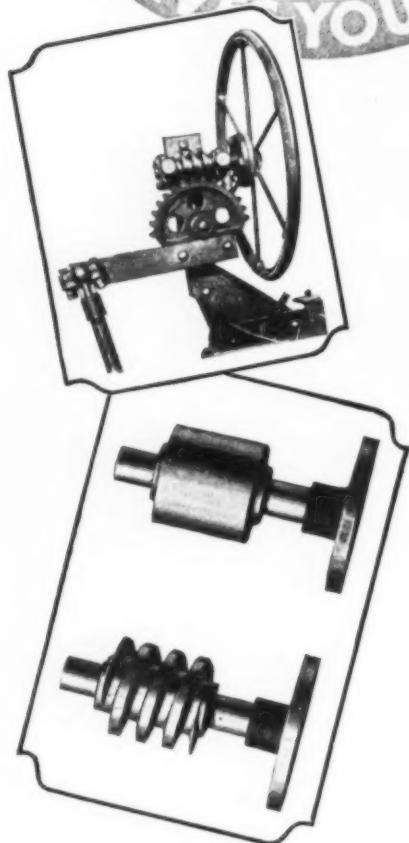
### What is Meant by "Lost Motion"

"Lost motion" is that play at the connecting points of the blade control mechanism which makes it possible for the blade to ride over a hard, high spot or drop down into a low one. This makes fine work out of the question; but it was a necessary evil with which patrolmen were forced to contend until Western Engineers turned their attention to the problem, with the results we will now describe.

### How Western Engineers have Eliminated Lost Motion

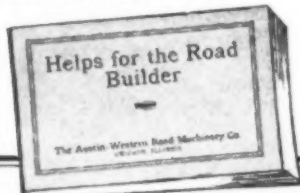
The blade control mechanism is of the worm and gear type, self-locking in any position. Both worm and gear are accurately machined cut steel. The worm and the flange to which the hand wheel is bolted are a single, solid steel casting. The housing for these worms is accurately machined and hot riveted to the supporting post, so there can be no lost motion at that point. The hand wheel hub has a flange cast on it to match the flange on the worm. These two flanges are bolted together, so there can be no lost motion at that point. The blade lifting arms have ball and socket connections which can be taken up for wear, thus eliminating any possibility of lost motion at those two vital points.

Space will not permit a detailed description of the many other worthwhile features of these, the only really up-to-date Patrol Graders; but the catalog tells the whole story and the coupon makes it easy to ask for your copy. Better tear it off now while you are reading this page.



Above: At no point in the entire blade control mechanism can lost motion creep in.

Below: Worm, shaft and flange are a single steel casting.



I would like the Catalog

**THE AUSTIN-WESTERN  
ROAD MACHINERY CO.**  
400 N. MICHIGAN AVE., CHICAGO, ILL., U.S.A.

Branches in all Principal Cities



# LAKEWOOD

*Paving and Construction Equipment*



## The Subgrader

**Planes the Subgrade to Exact Depth and Cross Section**

Six years' experience has proven without vestige of doubt that no other tool on the road job can make greater saving or produce larger returns on the original investment than the Lakewood Subgrader.

*Send for New Bulletin No. 46-S*

**THE LAKEWOOD ENGINEERING CO**  
CLEVELAND, OHIO

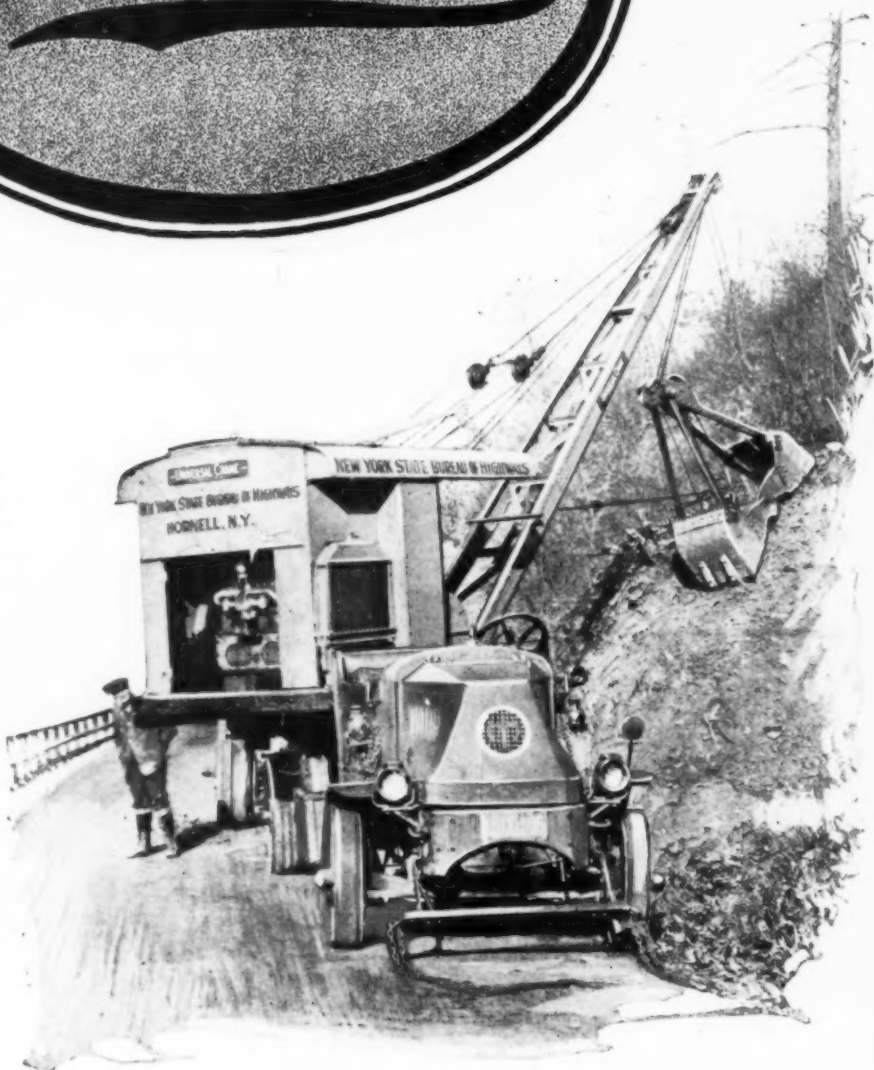
.....  
LAKEWOOD ENGINEERING CO.  
Cleveland, Ohio.  
I want complete information on the Lakewood Subgrader.  
Send me all the printed matter on the subject—  
at once.  
Name .....  
Address .....  
..... S



**S**TATE and county highway officials throughout the country have found a permanent use for the motor crane on road maintenance and construction work, such as repairing bridges, snow removal, car unloading and many other uses where crane units can take the place of costly hand labor.

The illustration shows a MACK motor crane operated by the New York State Bureau of Highways at Hornell, N. Y., while another similar unit serves in and around Syracuse, N. Y.

Mr. Wm. Acheson, Division Engineer, in speaking of the service rendered by the MACK said: "The labor saving qualities and the mobility of this unit makes it one of the most valuable pieces of equipment we have in this division. It is a great machine and every division should be equipped with one."



**Mack Trucks, Inc.**

**INTERNATIONAL MOTOR COMPANY**

**25 Broadway**

**New York City**

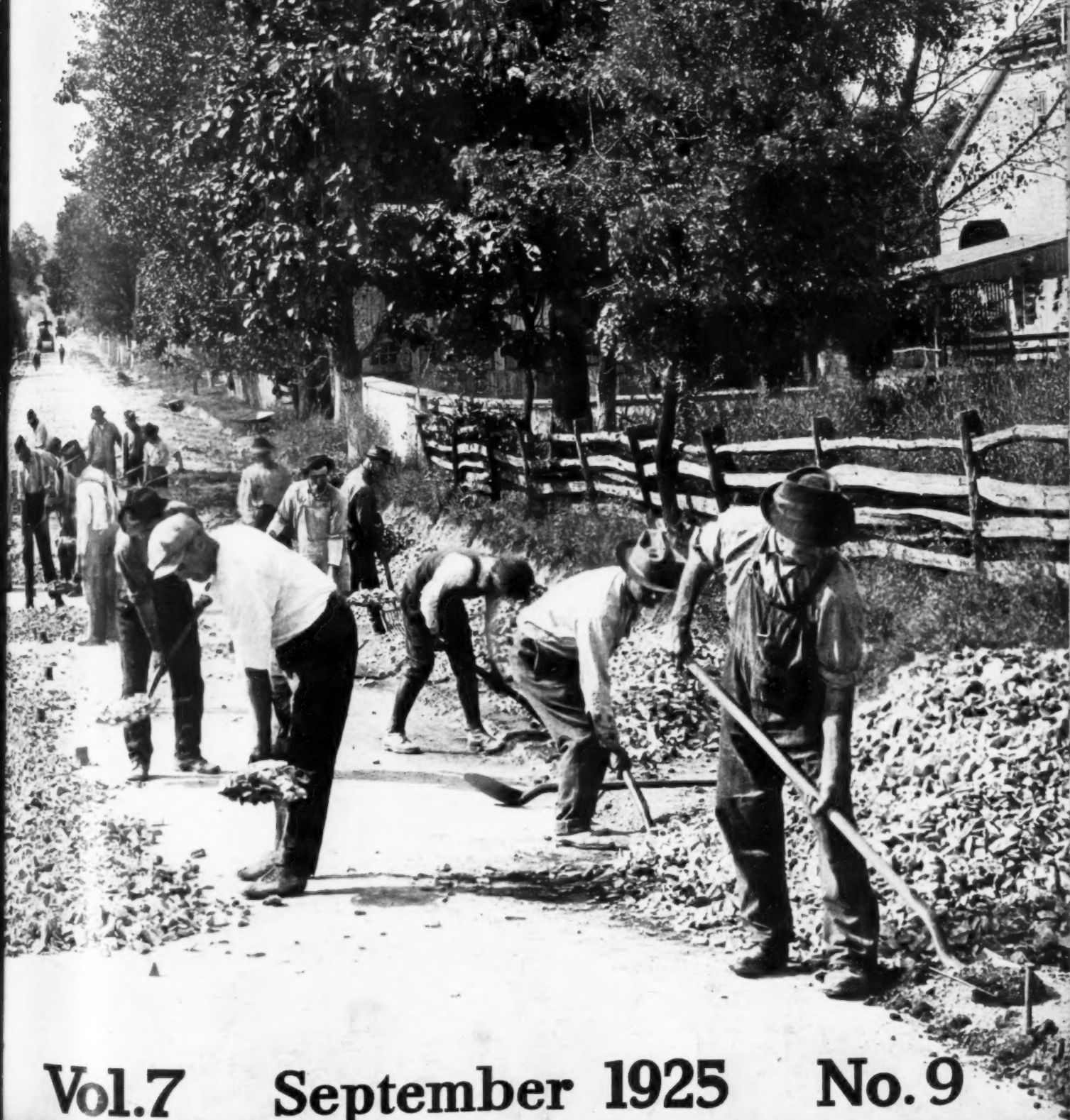
Eighty-eight direct MACK factory branches operate under the titles of: "MACK-INTERNATIONAL MOTOR TRUCK CORPORATION" and "MACK MOTOR TRUCK COMPANY"

**PERFORMANCE COUNTS**



# Successful Methods

Construction - Road Making - Engineering - Industrial - Mining



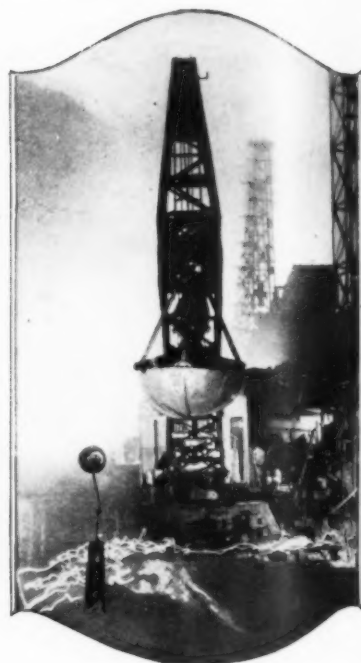
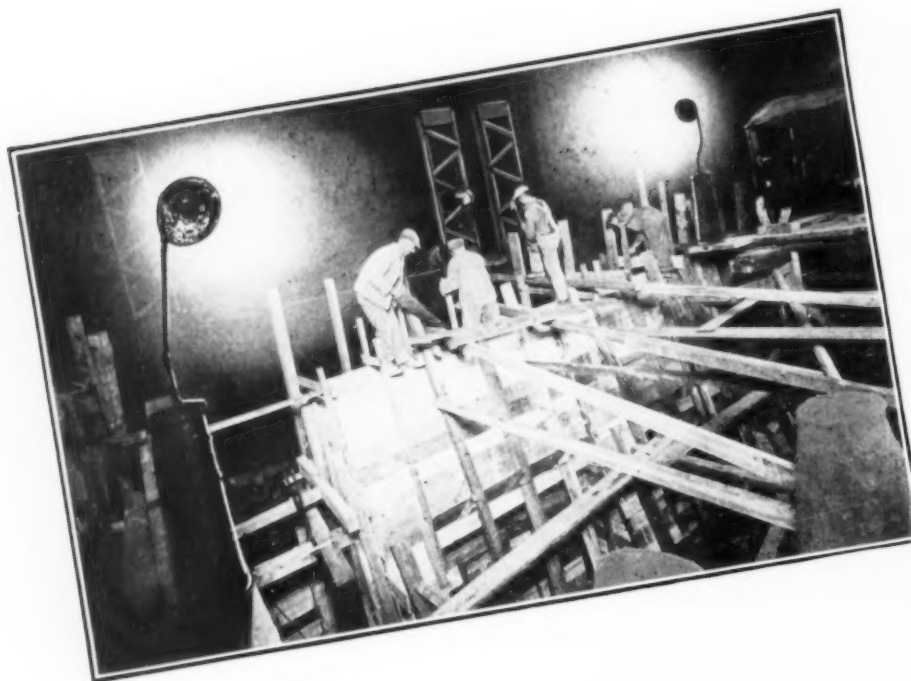
Vol.7

September 1925

No.9



# The CARBIC LIGHT



## *"Sunshine at Night"*

Carbic Portable Lights make it profitable to push the job ahead straight through the night hours. Under the brilliant white glow of the Carbic Light, the men can work at their best, thus keeping your expensive equipment busy through the night hours and reducing overhead.

The Carbic Light is the simplest, safest, portable light ever produced. There is no oil, no gasoline, no liquid whatever used in the Carbic Light, except water.

There is no danger, no fuss and

no muss. The Carbic Light burns CARBIC in convenient cake form, which yields a pure gas, and burns twelve hours without any attention. When the Carbic Cake has burned out, replenishing is only the work of a moment.

The Carbic Light saves time and money. It gives a most powerful light, and most economically. A gale of wind cannot blow it out. It is strong and durable and stands roughest handling. It stands solidly wherever placed, but if knocked over there is no danger; the light goes out and generator ceases immediately.

*You can test the Carbic Light right on your own job.*

*Write for details.*

## Carbic Manufacturing Company

Duluth, Minn.

NEW YORK CITY  
141 Centre St.  
ATLANTA, GA.  
169 Haynes St.

DULUTH, MINN.  
General Office

CHICAGO  
3914 S. Wabash Ave.  
KANSAS CITY, MO.  
W. 9th St. & So. Ry. 1411 St. Louis Ave.

LOS ANGELES, CAL.  
1941 No. Commonwealth Ave.

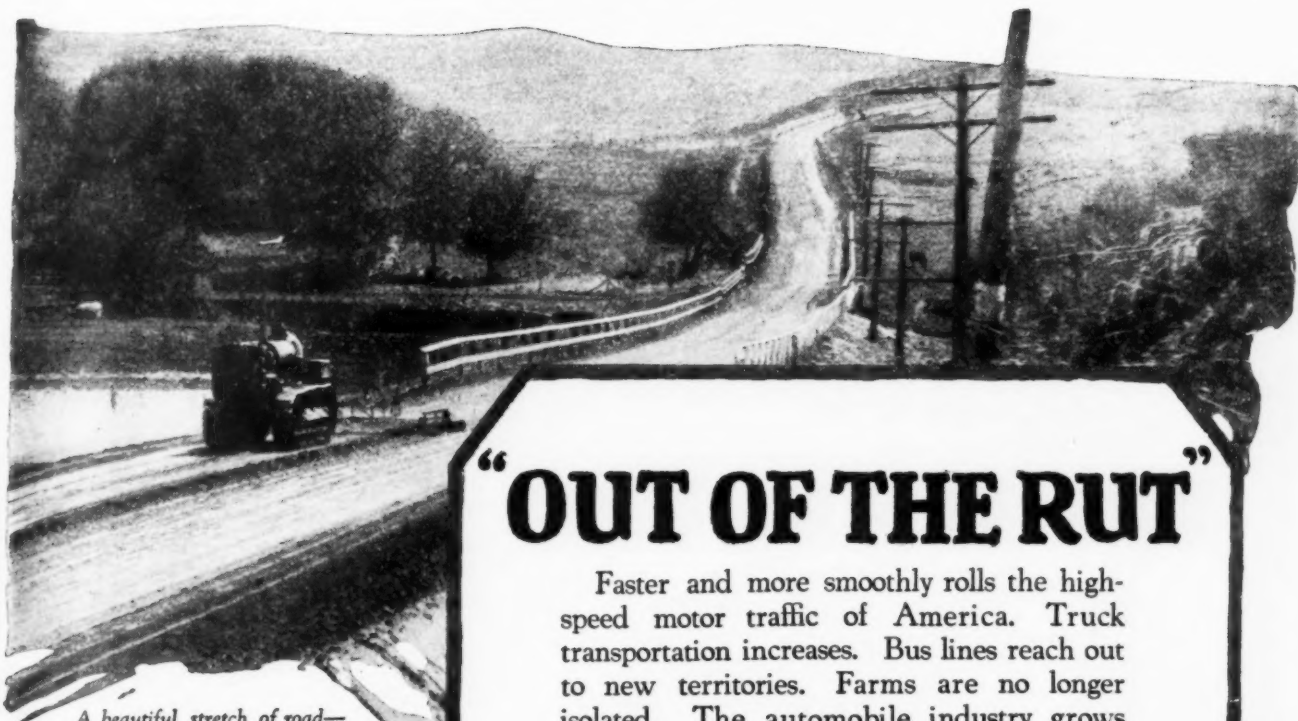
BOSTON, MASS.  
50 Terminal St.  
EL PASO, TEX.  
129 N. Campbell

DENVER, COLO., Hendrie & Bolthoff, M. & S. Co.  
NEW ORLEANS, LA., Woodward, Wight & Co.  
DALLAS, TEXAS, Briggs-Weaver Machinery Co.

**Warehouses and Representatives in All Principal Cities**

*We also make Portable Carbic Generators for use in oxyacetylene Welding and Cutting*





A beautiful stretch of road—  
well maintained with a  
"Caterpillar" Thirty

"Caterpillar" Tractors  
pioneer for industry gener-  
ally and for agriculture.  
Their usefulness extends  
to the outskirts of civiliza-  
tion, breaking virgin sod,  
hauling logs, or minerals or  
supplies, or creating road-  
ways.

A "Caterpillar" 10-Ton grad-  
ing a well crowned dirt road.

## "OUT OF THE RUT"

Faster and more smoothly rolls the high-  
speed motor traffic of America. Truck  
transportation increases. Bus lines reach out  
to new territories. Farms are no longer  
isolated. The automobile industry grows  
apace. Better roads!

Thank shrewd and far-sighted road officials  
of town and county and state. Thank those  
who have wisely invested the public money  
in sturdy modern road machinery. Thank  
"Caterpillar" Tractors.

A mighty task has been done! There is a  
mighty task yet to do! "Caterpillar" Tractors are  
road builders. Catalogs telling about them belong  
in the home or office of every lively American.

They're yours for the asking.

### CATERPILLAR TRACTOR CO.

Executive Offices

SAN LEANDRO, CALIFORNIA, U. S. A.

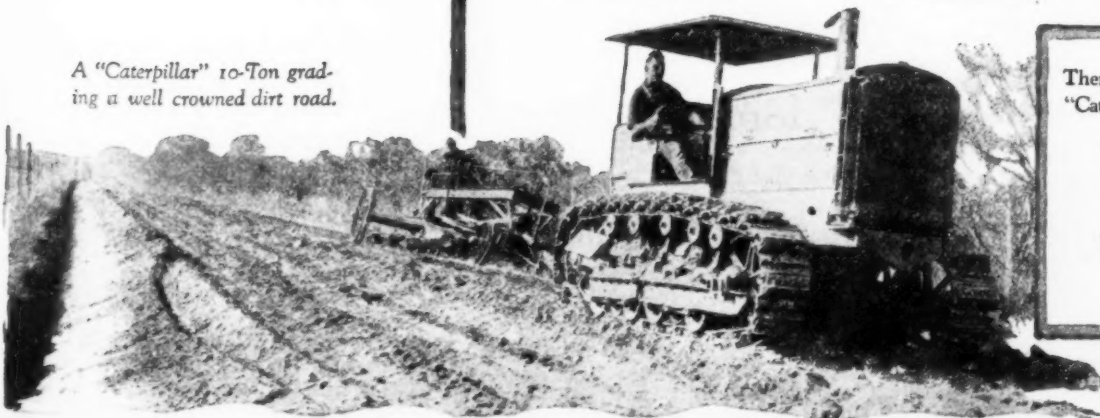
Factories: San Leandro, Calif.  
Stockton, Calif., Peoria, Ill.

Offices: New York City  
San Francisco, Spokane

Successor to

BEST C. L. Best  
Tractor Co.

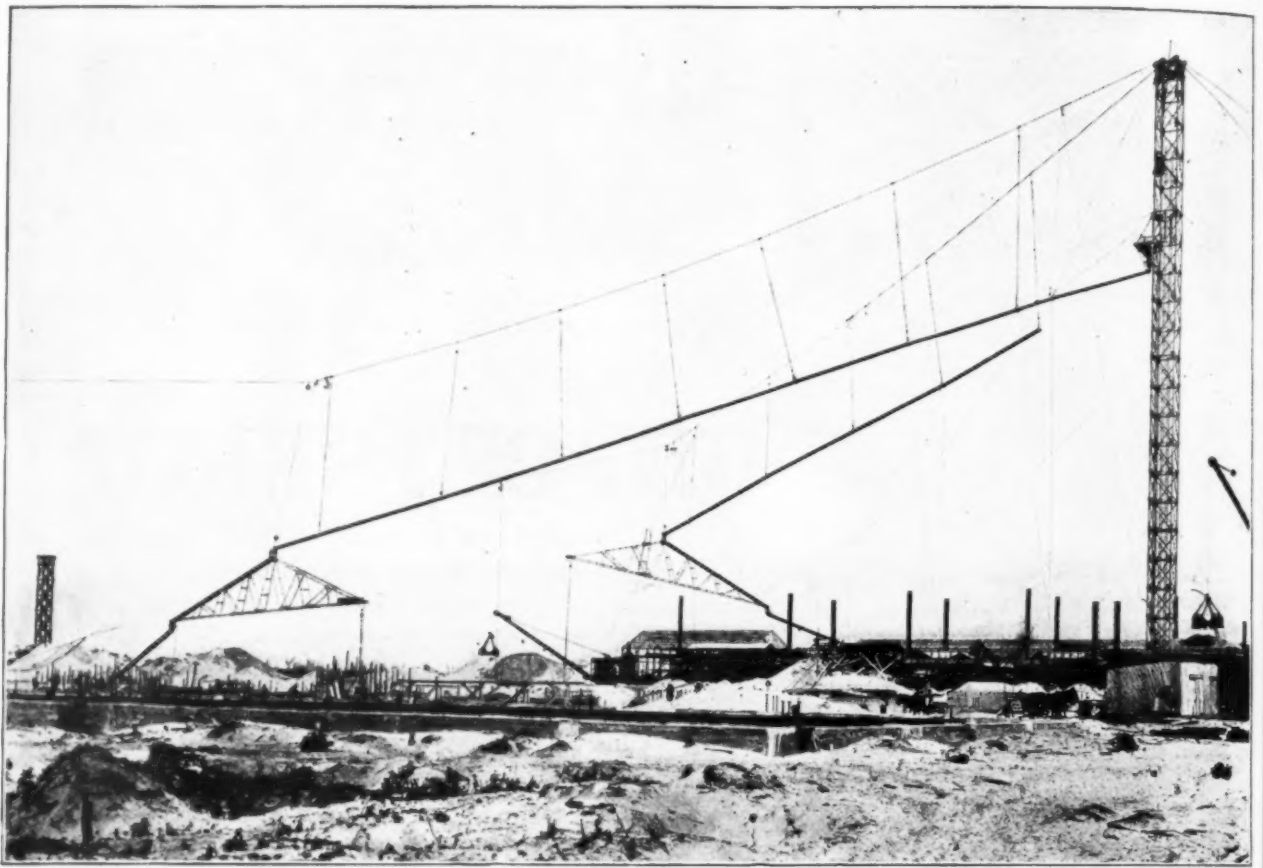
The Holt Manufac-  
turing Company HOLT



There are five sizes of  
"Caterpillar" Tractors,

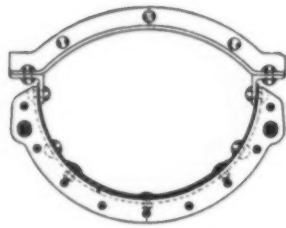
10-TON  
SIXTY  
5-TON  
THIRTY  
2-TON

**CATERPILLAR**  
REG. U. S. PAT. OFF.



*A Lakewood Steel Tower and Counterweight Chuting Plant  
as used by the Mellon Construction Co.*

## *That Additional Factor of Safety*



Lakewood Arched Band Chute means greater capacity and less clogging or spilling. It is recognized as the ideal chute for handling large aggregate concrete.



which comes from the greater capacity and longer life of Standard Lakewood Chute is something you cannot afford to neglect.

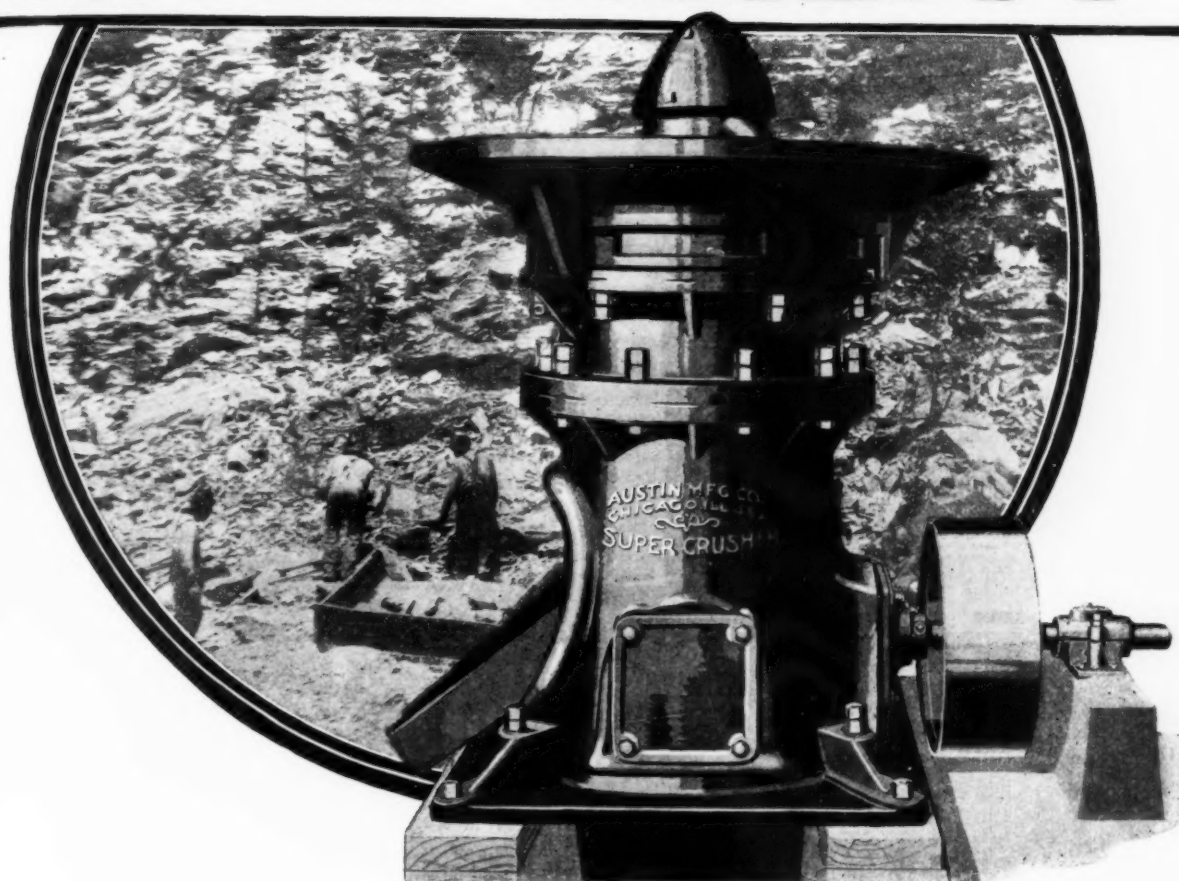
*Ask for Bulletin 23-S*

# **The Lakewood Engineering Company**

Cleveland, U. S. A.  
Export Office: 30 Church St.  
New York City



# CRUSH - ABILITY



... knowledge of service requirements—plus the best of materials and workmanship—make AUSTIN SUPER CRUSHERS ... The hardest of rock does not stall them ... after years of service they show no fatigue ... because “crush-ability” is built in with durability, operating efficiency and maintenance economy ... We want to tell you more ... there’s a lot more to tell, ... if you’re interested in details, we’ll let our engineers tell you ... if you’re interested in performance, we’ll let our users tell you ... either story is good—and true ... write us.



## AUSTIN MANUFACTURING CO.

ESTABLISHED 1858

400 N. MICHIGAN AVE. CHICAGO

# "Maintenance Cost — at a Minimum" *Paul M. Schroter Co.*

Sterling barrows are strong in every part. All parts are interchangeable. They balance well and wheel easy.

In reply to your inquiry, we have always used Sterling wheelbarrows as our standard equipment. We have found that the interchangeability of the parts have kept the cost of this equipment down to a minimum.

Yours truly,

PAUL M. SCHROTER COMPANY

*Paul M. Schroter*



Direct factory stocks in important centers. Sold by leading equipment dealers everywhere.

## STERLING WHEELBARROW COMPANY

STERLING ON A WHEELBARROW MEANS MORE THAN STERLING ON SILVER

Milwaukee

MANUFACTURED FOR THE EUROPEAN MARKETS BY —  
STERLING FOUNDRY SPECIALTIES LTD. STERLING WORKS, BEDFORD, ENGLAND

Wisconsin

The "Sterling" wheels easier and lasts longer

"Sure, I'll have it there  
in 10 minutes"



Quick Service! That's the kind the GANG SIZE Universal is built to give. It quickly speeds to any job whether it's 1 mile or 40 miles away.

Once there it does a GANG SIZE job and does it quickly too!—replacing 20 to 30 men easily on many different kinds of work. Universal Owners never have to depend on unreliable labor gangs, their Universal is their gang and it's much faster—both getting to the job and doing it.

Many Universal Owners have found that speedy service coupled with the replacement of large labor gangs at a fraction of their cost has opened an immensely profitable field—ask any Owner, there are hundreds of them throughout the country!

*Clip this coupon and send for Bulletin 28. It tells the story!*



THE UNIVERSAL CRANE CO.  
914 Swetland Bldg., Cleveland

Kindly send me Bulletin 28 and complete  
information about the Universal Crane.

Name.....

Company.....

Address.....

1229 SM

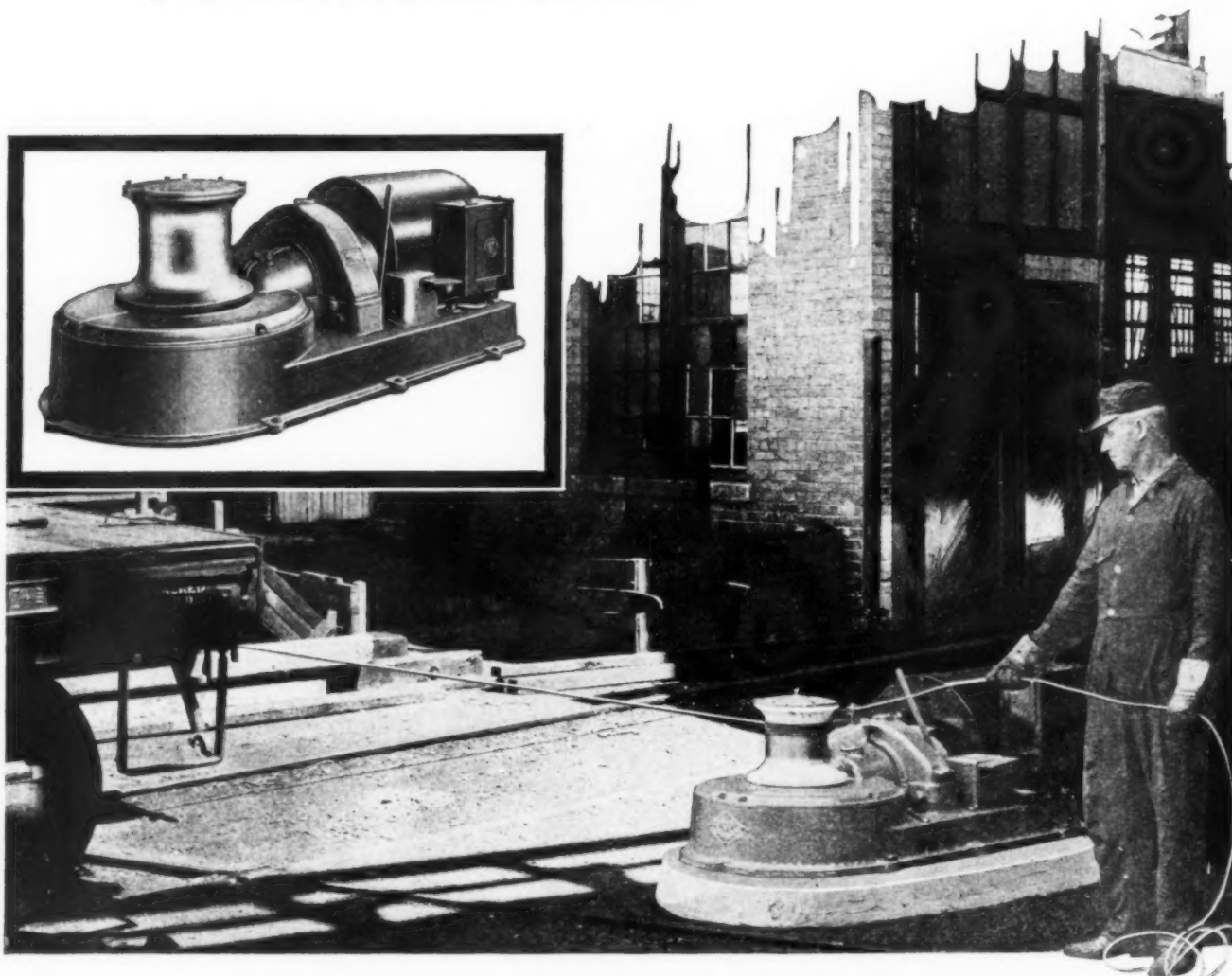


# CLYDE ELECTRIC CAPSTAN CAR PULLER

The Clyde Electric Capstan Car-puller is adapted to successful operation in any plant where a need exists for moving railroad cars to and from loading stations.

It consists of a vertical capstan driven through spur and bevel gearing by an electric motor. Gears run in a bath of oil insuring perfect lubrication. All power transmitting parts are completely enclosed. Built for direct or three phase alternating current.

Detailed information may be secured from the home office, any Clyde branch or from any authorized Clyde dealer. The car-puller carries the same rigid guarantee as any other Clyde line unit.



*You'll Take Pride in Your Clyde!*

## CLYDE IRON WORKS SALES COMPANY

Sole Distributors for CLYDE IRON WORKS, Duluth, Minn.

NEW ORLEANS  
309 Magazine St.

Stocks Carried in the Following Warehouses:  
NEW YORK CITY  
E. 136 St. and Locust Ave.

PORTLAND, ORE.,  
555 Thurman St.

SEATTLE  
3410 First Ave. So.

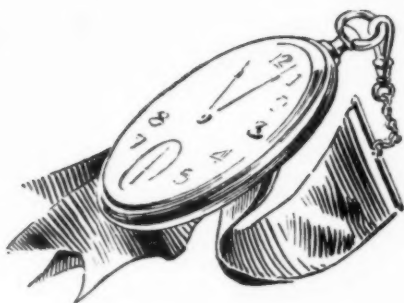
CHICAGO  
11 So. La Salle St

CINCINNATI  
1913 Union Central Bldg.

Branch Offices:  
MEMPHIS  
69 Union Ave.

JACKSONVILLE, FLA.  
43-45 W. Forsyth St.

SAN FRANCISCO.  
50 Fremont St.



## *This Watch Belonged to a Contractor*

**I**T had been given to him by his wife to commemorate their twelfth wedding anniversary. But it was a good watch just the same.

The contractor used it to find out when it was dinner time, when it was starting time and when it was quitting time. But he never used it to find out why he wasn't making the profits he should.

### *One day*

while watching one of his pavers, he did. He noted that the paver skip lay flat on the ground, waiting for materials, for exactly three minutes and seventeen seconds.

During the next fifteen minutes things hummed along in beautiful fashion. Then came a five minute and twelve second wait. Then eleven minutes of work. Then another wait of four minutes and fifty seconds.

### *So the contractor*

did some figuring on the back of a blue print. And he used language that wouldn't bear repetition at a revival meeting.

But you can't blame him. Seventeen minutes and four seconds had been wasted by his paver in less than an hour. And that means more than ten lineal feet of pavement lost.

Two Barber-Greene working in a tight corner on Market Street, Chicago. Their ability to show real loading and batching speed on practically every and any job is one reason why they are turning in big profits for contractors all over the country.

The latest Barber-Greene road book—*Contracting with Barber-Greene*, shows what contractors are doing on material handling. Send for a copy. It's free to contractors.

So he jumped into his car and tore back to the batching plant. The reason for the lost time was plain. The batch trucks were bunching while waiting to be loaded. That called for more figures on the back of the blue print. This time they had to do with the cost of a lot of fancy loading equipment.

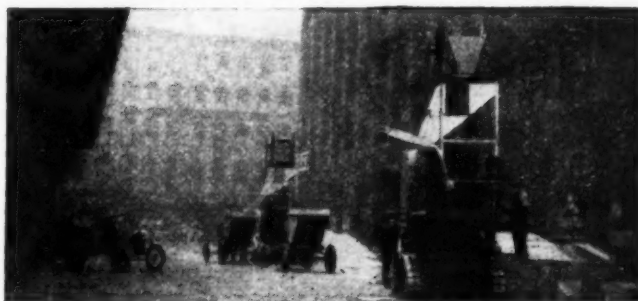
### *That night*

the contractor went home and read an ad and wrote an ad. The one he read was like this one. The one he wrote simply said, "For Sale, slightly used, etc." He answered the one he read. Someone else answered the one he wrote.

A Barber-Greene now loads and batches his gravel. Another loads and batches his sand. Incidentally a Barber-Greene conveyor piles cement in his cement shed.

### *This contractor*

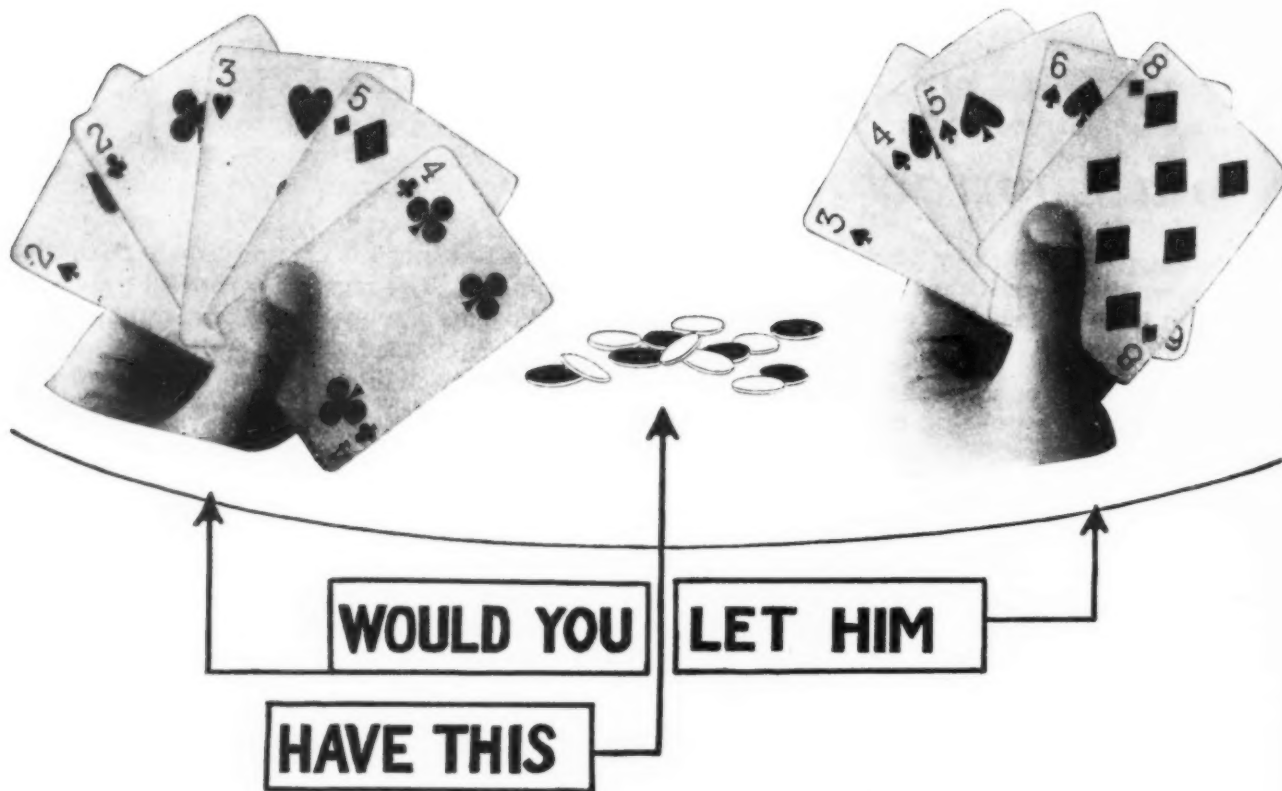
is going to California this winter. He's taking his watch with him. That's only fair. In addition to telling him when it is dinner time it brought in the Barber-Greene that made the paver do a day's work. And a season of those days built up the bank balance that made the trip to California possible.



BARBER-GREENE CO.  530 W. Park Av., Aurora, Ill.  
Representatives in Fifty Cities  
**BARBER GREENE**  
Portable Belt Conveyors Self Feeding Bucket Loaders  
Coal Loaders . . . . . Automatic Ditch Diggers . . . . . Coal Feeders

# GET A SHOWDOWN

— you're entitled to it



*The Fightin' Kind of a Poker Player Plays and Calls Every Hand; a Regular "Show Me" Fellow.*

As a rule he plays his business the same way. When he does he uses good judgment, plus

## WILLIAMSPORT

Telfax Tape Marked—Factory Certified

## WIRE ROPE

Because in no other wire rope can he get such a definite "show down" as to grade.

What difference does it make how reputable a wire rope manufacturer is, if he does not protect you from getting the wrong grade (tensile strength). No maker can stay with a rope until it goes into service and tags and reel marks can easily get mixed up.

If you buy a Mild Plow rope and you get a Crucible Cast rope by mistake—it breaks and closes down an operation. Does the fact that the manufacturer is reputable change the result?

The old, obsolete, dangerous method of selling uncertified

wire ropes is gone forever from the Williamsport organization. Each grade of Williamsport Ropes is marked at the factory by the only man who actually KNOWS the grade. He weaves a Telfax Tape into and throughout the hemp core of the rope, which states the grade in plain English. This cannot be separated from the rope, no matter how often it changes reels or tags. MISTAKES cannot "get by."

No other wire rope affords this great protection—and it is worth vastly more than the Line costs.

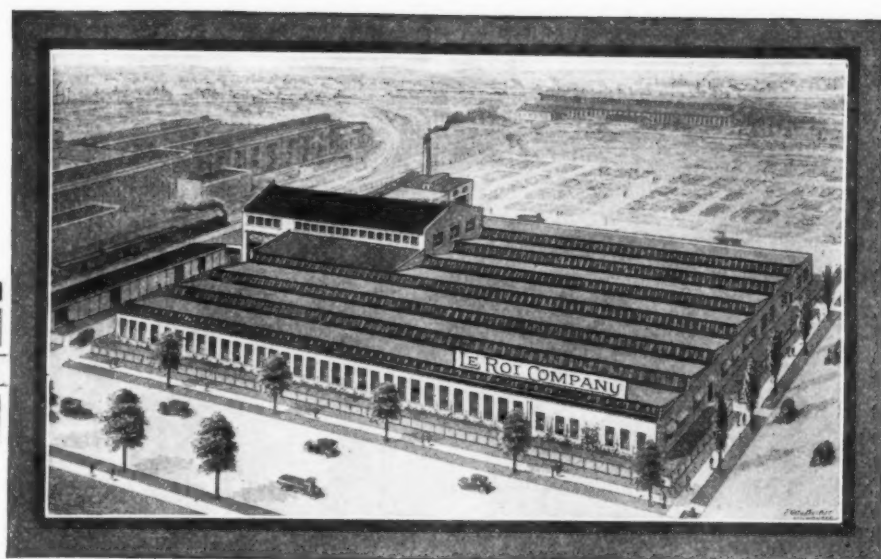
Why, then, take chances on unmarked ropes?

## WILLIAMSPORT WIRE ROPE COMPANY

Main Office and Works  
Williamsport, Pa.

Gen'l Sales Offices  
Chicago, Ill.



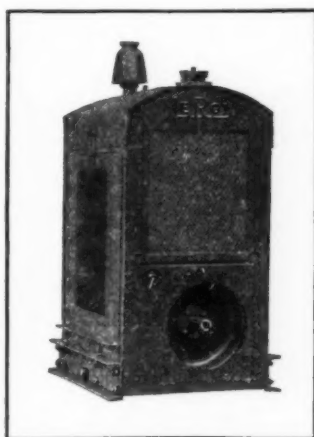


## Qualifying Leadership

**T**HERE are certain requisites of every leader. In the manufacture of gasoline engines they are: a perfected, tried and proven product, practical engineering staff, skilled workmen, spacious and modern plants, financial stability, wider recognition and national parts distribution.

Le Roi qualifies on every count. Its latest acquisition—a big addition to its plants—gives it another step forward, sets Le Roi out even further in front—an enviable position.

Le Roi's leadership and claim to **dependable power** is an earned one. It is backed by performance. The unwavering Le Roi fidelity to the highest engine-building standards has resulted in the perfection of every construction detail; thus assuring ruggedness, surplus power and enduring service; and practical design for machinery that depends on power for profitable performance.



The significant fact about the Le Roi Engine is its surprisingly low average repair part cost per year. This assures a lower operating and maintenance cost than other engines of this type can equal.

Look to the Le Roi for dependable power, longer life; and the plant back of it for the latest, practical designs known to experienced engine manufacturers who make nothing else.

**LE ROI COMPANY**  
MILWAUKEE - WISCONSIN

**LE ROI ENGINES**  
for dependable power!



## *Is your town still using* **HAND METHODS?**

One small community in one year's time saved enough money with an Ingersoll-Rand Portable air compressor to entirely pay for the unit. Another unit was then purchased, so as to completely eliminate hand labor.

Ingersoll-Rand portable air compressor and tools have made big savings for hundreds of communities, public utilities and contractors. The Company supplies both compressors and tools of its own manufacture, assuring the purchaser of reliable labor-saving machines and of undivided responsibility for their successful operation.

There are six sizes of compressors, on a variety of mountings and a complete line of air tools. Ask for complete information. A copy of our 72-page book entitled, "100 and 1 Ways to Save Money with Portable Air Power," will be sent you free upon request.

*Above—Ramming backfill with size 22  
Pneumatic Tamper.*

*Center—Digging or picking clay and  
hard ground with size 156H  
Trench Digger.*

*Top—Making pavement opening with  
CC Paving Breakers.*

INGERSOLL-RAND COMPANY, 11 BROADWAY, NEW YORK CITY  
*Offices in principal cities the world over*  
FOR CANADA REFER: CANADIAN INGERSOLL-RAND CO., LIMITED  
260 ST. JAMES STREET, MONTREAL, QUEBEC

# Ingersoll-Rand

# KOEHRING

**It's as Important to Buy a Mixer "Right"—as it is to Buy the Right Mixer**

**T**HE two go together because the mixer of stabilized, unquestioned quality is never forced to make unjust price or "trade" concessions, and in consequence has quick-call, unstinted service behind it when it is actually at work on your job.

No matter where you operate your Koehring, in the sales territory of the representative from whom you bought your Koehring, or in some other representative's territory, there will be the liberal Koehring service behind your Koehring mixer.

The Koehring Company cuts neither Koehring Heavy Duty construction nor Koehring service in favor of price!

The Koehring Company is more vitally interested in maintaining the Koehring as the mixer of *Profitable Performance*, than in making "price" sales to any individual or in any territory.

*Write for Paver Bulletin, No. P.-17*

## KOEHRING COMPANY

PAVERS, MIXERS—GASOLINE CRANES,  
DRAGLINES AND SHOVELS

MILWAUKEE, WISCONSIN

*Sales Offices and Service Warehouses in principal cities*

*Foreign Department, Room 1370, 50 Church St.,  
New York City*

*Canada, Koehring Company of Canada, Ltd.,  
105 Front St., East, Toronto, Ontario*

*Mexico, F. S. Lapum, Cinco De Mayo 21, Mexico, D. F.*

### Sizes

**Pavers**—7-E, 13-E, 21-E. Auxiliary equipment and choice of power to suit individual needs. Complies with A. G. C. Standards.

**Construction Mixers**—10-S, 14-S, 21-S, 28-S. Steam, gasoline or electric power. Mounted on trucks or skids. Rubber tired wheels optional. 28-S on skids only. Complies with A. G. C. Standards.

**Dandie Light Mixer**—107-S. Two or four cylinder gasoline engine. Power charging skip, or low charging hopper and platform. Rubber tired steel disc wheels or steel rimmed wheels. Complies with A. G. C. Standards.



A2803-I





# You Can Make More Money with Westerns



*Western Narrow Gauge Dump Cars on Canton-Bayard Cut-off.*



**Western**

*That's why!*

**T**HIS is one of four contracts on the Canton-Bayard-Cutoff of the Pennsylvania Railroad now building. *Western* narrow gauge dump cars are used by every contractor. Ask them why *Western* dump cars were installed instead of some other make. The reason can be summed up in seven words:

*"You can make more money with  
Westerns."*

May we help you make money also?

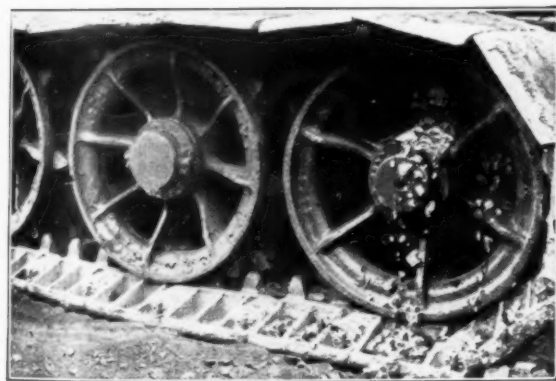
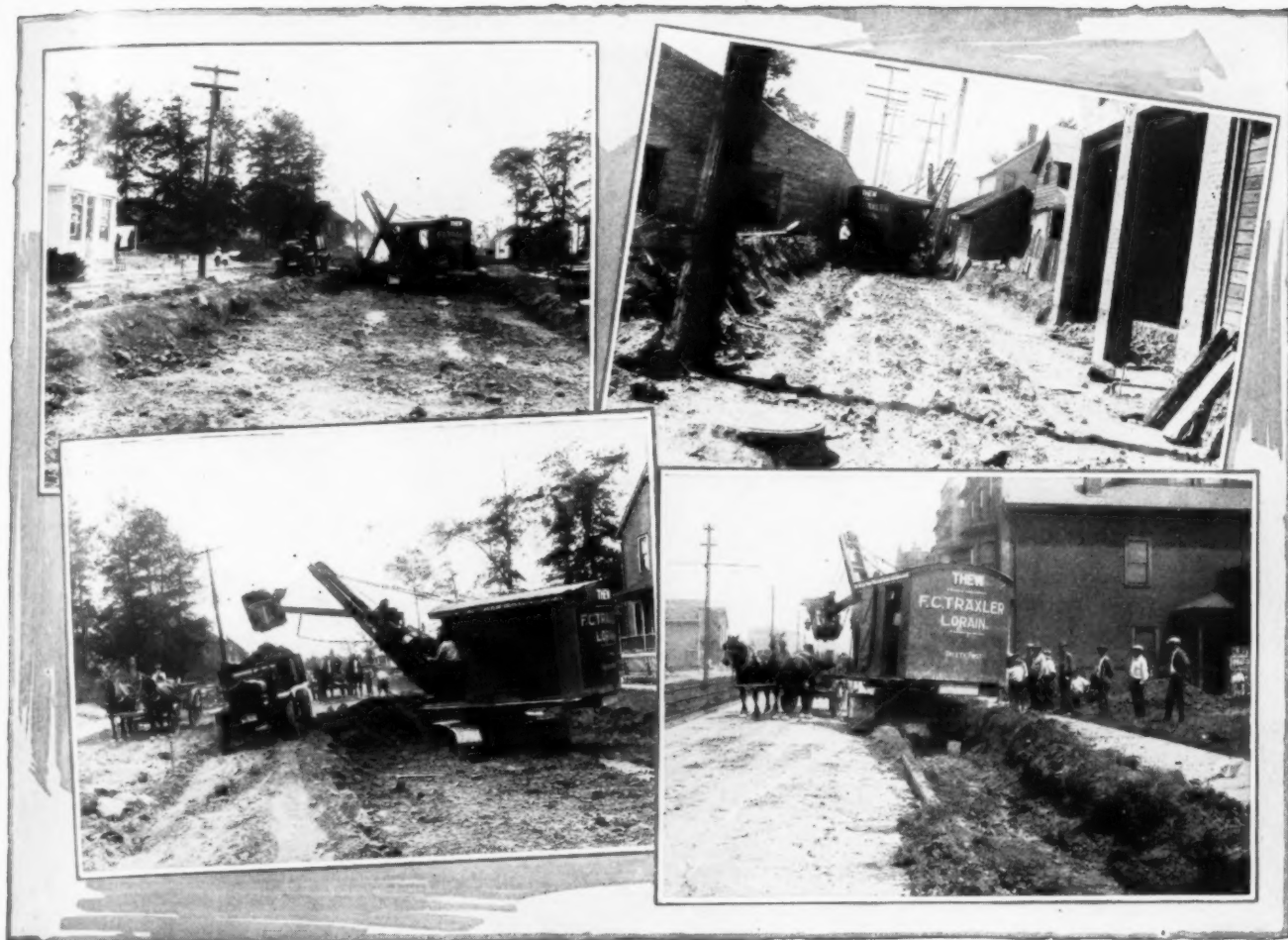
WRITE TODAY.

## Western Wheeled Scraper Company

Founded 1877

*Earth and Stone Handling Equipment*

AURORA, ILLINOIS



#### Has Self-cleaning Treads and Drive Rollers

Has More Clearance Underneath—Steers in Large or Small Radius Without Stopping—Can be Towed by One Motor Truck—Will Walk Right Up a 30% Grade—Will Travel 1½ Miles per Hour—Will Not Damage Pavements—Can Dig Closer at Either End—Has Tread Pins that Need No Lubrication—The Most Durable Truck Ever Built.

The THEW CENTER DRIVE Does It

## The Busiest Shovel In Town

Traxler's half yard Thew Gasoline Shovel seems to be everywhere in Lorain at once. One day you will see it making the dirt fly in a small cellar excavation, the next you will find it miles away on a street grading job, a small sewer job, a road grading job or in a narrow alley.

Their shovel is one of the babies of the Thew Family. It is always busy because it can work in such cramped or crowded quarters and on small jobs where a larger shovel could not go or would not pay. Then, when through at one place it can gallop quickly away on its Center Drive Truck to another job. It is one man operated and, being gasoline driven, is always ready to go.

For the beginner in the contracting business, or as an auxiliary shovel for owners of larger equipment, this little giant shovel will soon pay for itself and show you the way to greater profits on your season's work.

Let us tell you all about the Thew Type OO Gasoline shovel or ask F. C. Traxler, Lorain, Ohio, to tell you what he thinks of it.

THE THEW SHOVEL COMPANY,  
LORAIN, OHIO

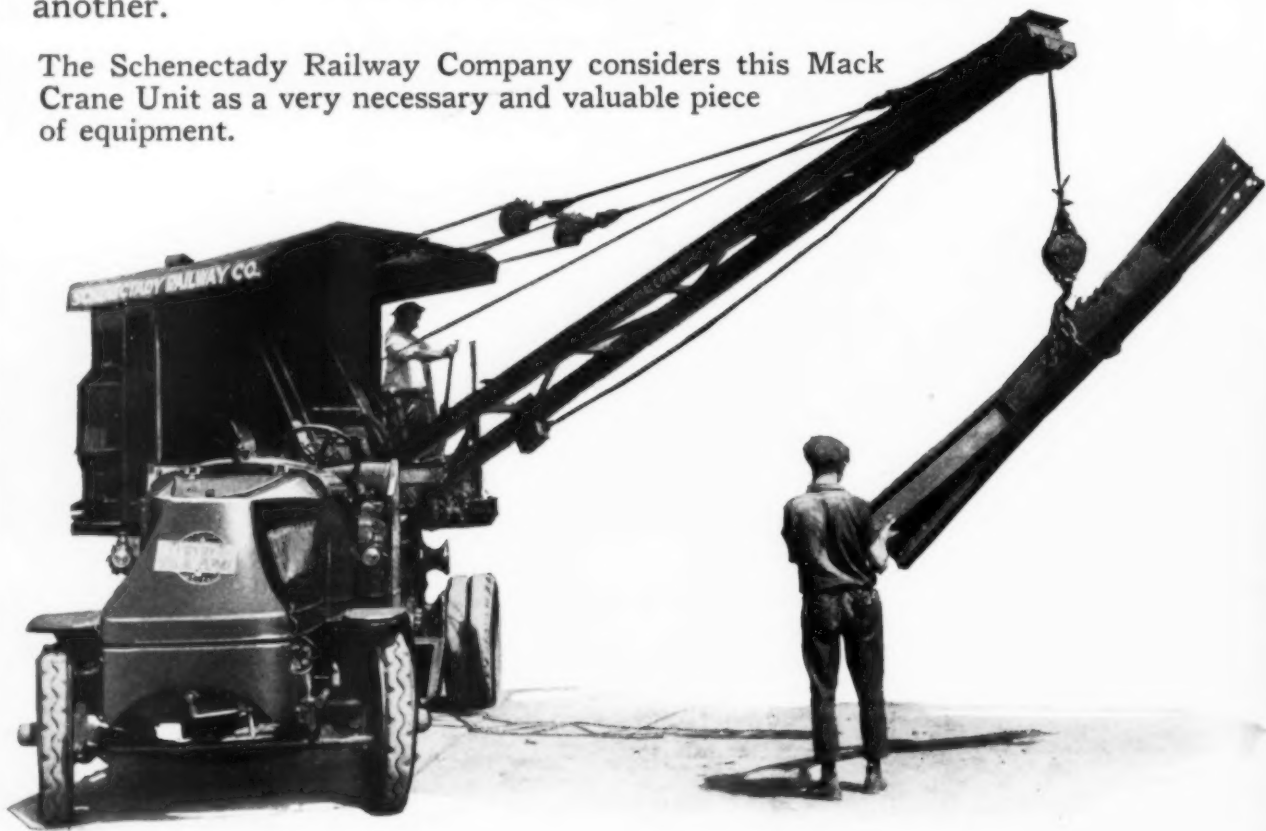
# Thew Lorain Shovels

## Dig Faster—Last Longer

The illustration below shows a MACK Crane unit operated by the Schenectady Railway Company. This apparatus is in constant operation in maintenance and general repair work over their 140 mile system.

This unit not only takes the place of costly hand labor but due to its roadability is a great time saver in changing from one job to another.

The Schenectady Railway Company considers this Mack Crane Unit as a very necessary and valuable piece of equipment.



**MACK TRUCKS, Inc.**  
**INTERNATIONAL MOTOR COMPANY**  
**25 Broadway, New York City**

Ninety-five direct MACK factory branches operate under the titles of: "MACK-INTERNATIONAL MOTOR TRUCK CORPORATION" and "MACK MOTOR TRUCK COMPANY."

**PERFORMANCE COUNTS**



# Successful Methods

Construction • Road Making • Engineering • Industrial • Mining



Vol. 7

October 1925

No. 10

# KOEHRING



## Higher priced—yes!

**N**OT because of any over-mastering greed or ridiculous stubbornness, but because the Koehring is built up to its price—to the last cent!

There will always be mixers sold cheaper than the Koehring—but the Koehring has proved its quality leadership. That's unquestioned—undisputed!

Isn't it the obligation of leadership to maintain quality and value? Isn't it true that the leader has everything to lose and nothing to gain, either in cutting quality to meet low price, or in over-pricing?

Be sure then that the only Koehring stubbornness is in the policy to build mixers of greater heavy duty construction and longer trouble-free service life!

*Write for Paver Bulletin P. 17*

### KOEHRING COMPANY MILWAUKEE WISCONSIN

PAVERS, MIXERS—GASOLINE CRANES, DRAGLINES AND SHOVELS

*Sales Offices and Service Warehouses in principal cities.*

*Foreign Department, Room 1370, 50 Church St., New York City;  
Canada, Koehring Company of Canada, Ltd., 105 Front Street, East,  
Toronto, Ontario;*

*Mexico, F. S. Lapum, Cinco De Mayo 21, Mexico, D. F.*

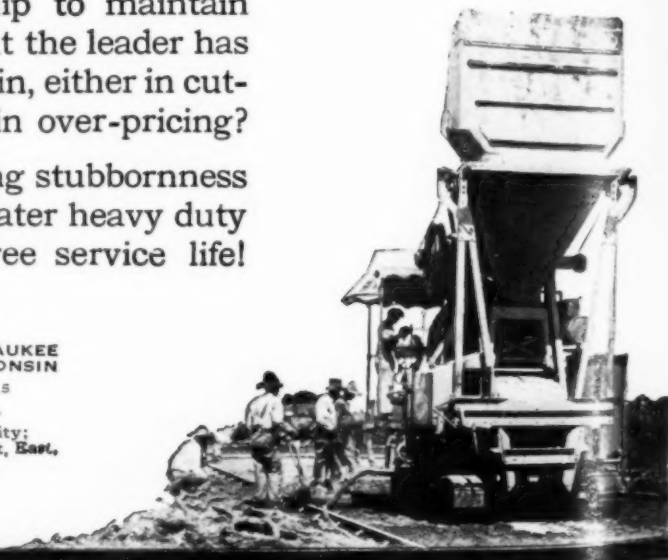
A 2619-1

### SIZES

**Pavers**—7-E, 13-E, 21-E. Auxiliary equipment and choice of power to suit individual needs. Complies with A. G. C. Standards.

**Construction Mixers**—10-S, 14-S, 21-S, 28-S. Steam, gasoline or electric power. Mounted on trucks or skids. Rubber tired wheels optional. 28-S on skids only. Complies with A. G. C. Standards.

**Doodle Light Mixer**—107-S. Two or four cylinder gasoline engine. Paver charging skip, or low charging hopper and platform. Rubber tired steel disc wheels or steel rimmed wheels. Complies with A. G. C. Standards.







**CARBIC CAKES**  
"The Heart  
of the Carbic Light"

Carbic Cakes are the most economical, reliable and time saving means of producing powerful light for portable uses. These solid, compact "bricks" slip quickly and easily into the light and burn long and efficiently without fuss, muss or waste.

Carload stocks in all sections.

## Speed Up!

The days are getting shorter and shorter—soon construction progress will be handicapped by the inevitable rainy season and heavy frosts. Now is the time to add a few hours to each of your working days—like hundreds of other thoughtful contractors are doing.

Get out your Carbic lights—the night shift is a "cinch" with these trusty units on the job. If you have not already purchased Carbic lights, your jobber can supply them or we can ship directly from warehouses located in all sections.

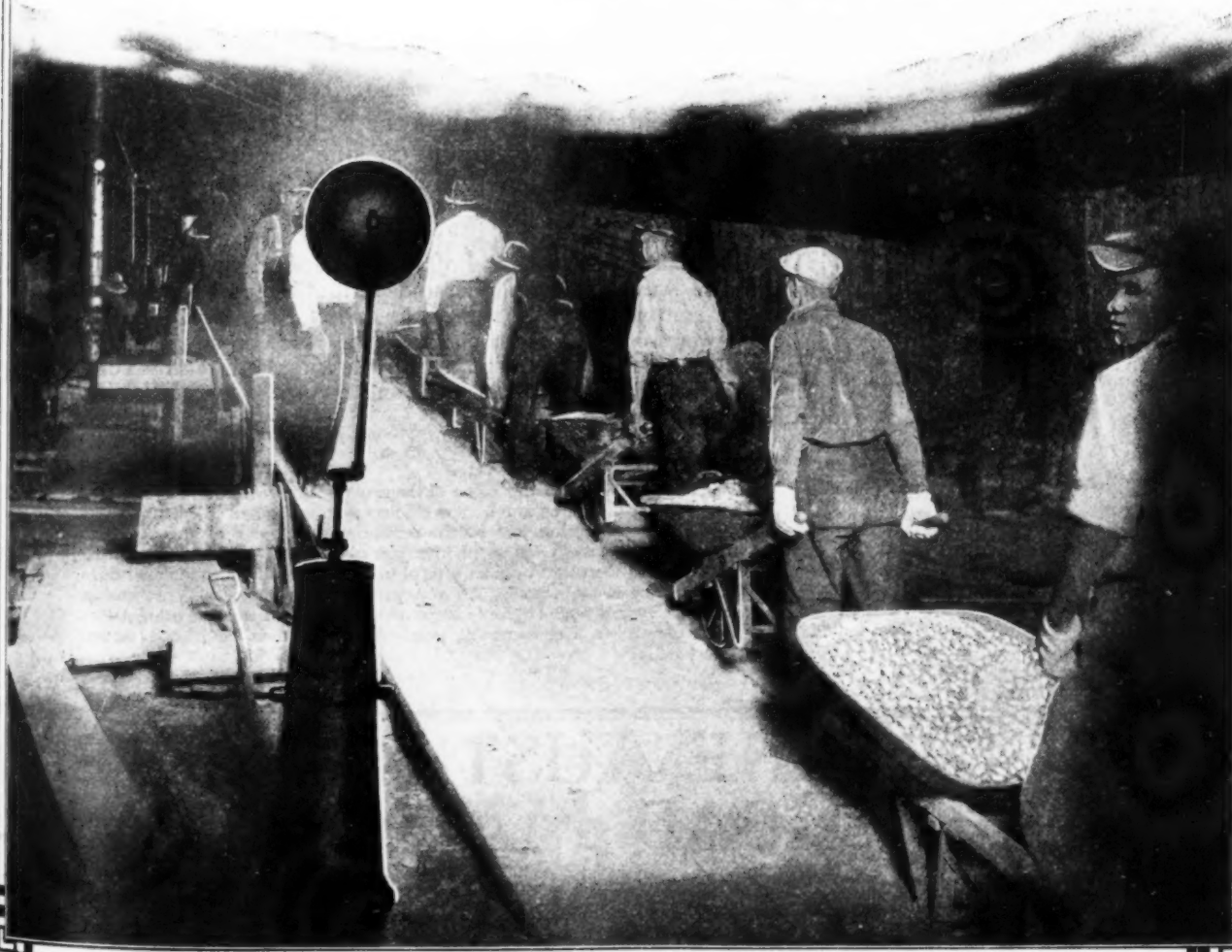
Carbic lights are operated by inexperienced labor with ease and safety. A trial will convince you. *Write or wire today.*

**Carbic Manufacturing Company**  
**DULUTH General Office**

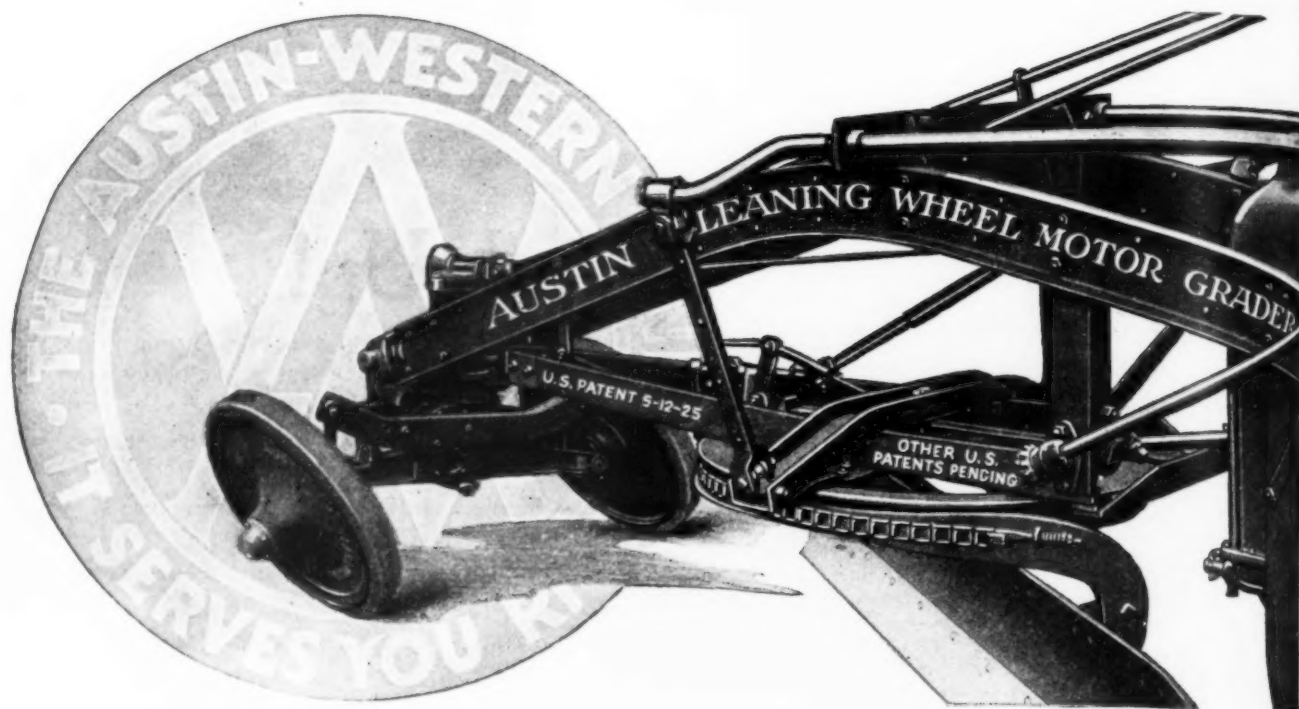
NEW YORK	CHICAGO	LOS ANGELES	BOSTON	ATLANTA, GA.
	CHARLOTTE, N. C.	KANSAS CITY, MO.		
EL PASO, TEX.	DENVER, COLO.	NEW ORLEANS, LA.		
129 N. Campbell	Hendrie & Bolthoff	Woodward Wight		
	M. & S. Co.	& Co.		

DALLAS, TEXAS, Briggs-Weaver Machinery Co.

*Warehouses and Representatives in other principal cities*







*This Heavy Duty model, with Crawler Tread and steel-tired leaning front wheels, is working on a shoulder where a straight wheel machine could never be operated successfully.*



I would like the Catalog

---



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## With These LEANING FRONT WHEELS You Can Do

**Better Work:** because these wheels keep the front end of the machine from slipping sideways, and thus hold the blade to a straight course.

**More Difficult Work:** because the leaning front wheels enable the Grader to work successfully on side slopes, like the one in the photograph at the left, where a straight wheel machine would be useless.

**Twice as Much of Any Kind of Work:** because you can use the whole blade of an Austin Motor Grader and set it at the proper angle to move dirt. Straight wheel machines must do one of two things to keep from sliding away from their work; either set the blade so straight across the frame that it won't cut and simply fills the ruts the way a road drag does, or set the blade at a very sharp angle and then raise the heel so high that it just cuts a narrow furrow.



Leaning Front Wheels are but one of the many exclusive features that make the Austin Motor Grader so much more efficient than any other. A new and profusely illustrated catalog, just off the press, describes these features of design and construction, and contains photographs of both rubber-tired and Crawler type machines working under all sorts of unusual and difficult conditions. Send for your copy of the Catalog, and you will then understand why Township, County, City and State Highway Departments and Contractors are using Austin Motor Graders in ever increasing numbers to save time, labor and money.

# THE AUSTIN-WESTERN ROAD MACHINERY CO.

400 N. MICHIGAN AVE., CHICAGO, ILL., U.S.A.

Branches in all Principal Cities

# USE Portable Air Compressors



*"Jackhammer" Rock Drills  
operated from I-R Portable  
Air Compressor*

*for  
faster building*

There are six sizes of Ingersoll-Rand Portable Compressors. Each size is built to operate a certain number of "Jackhammer" Rock Drills or other air-tools. Size 9 x 8 shown above, will operate in general service the following Ingersoll-Rand Air Tools.

Three—BCR "Jackhammer" Drills; or  
Two—DCR "Jackhammer" Drills  
and one No. 33 "Leyner"  
Drill Steel Sharpener; or  
Six—CC Paving Breakers; or  
Seven—156H Trench Diggers or  
56H Clay Diggers; or  
Seven—No. 22SR Backfill Tampers;  
or  
Nine—No. 2R Chippers; or  
Seven—No. 8A Riveters.

Excavation work is speeded up when Ingersoll-Rand Portable Air Compressors and "Jackhammer" Rock Drills are used. The compressors go to work as soon as they arrive on the job. They are easily moved to suit the progress of the work.

"Jackhammer" Rock Drills are one-man machines which will drill an average of 100 to 150 feet of hole per day in hard rock. They are the accepted standard for rock drilling the world over.

There is no better combination for rock work than I-R Portable Compressors and "Jackhamers." Ask for complete information.

INGERSOLL-RAND COMPANY—11 BROADWAY, NEW YORK CITY.

*Offices in principal cities the world over*

FOR CANADA REFER—CANADIAN INGERSOLL-RAND CO., LIMITED, 260 ST. JAMES STREET, MONTREAL, QUEBEC.

# Ingersoll-Rand

50 PC

Here is  
our proof  
of grade  
(TENSILE STRENGTH)



When You Buy a  
**WILLIAMSPORT**  
Telfax Tape Marked—Factory Certified

## WIRE ROPE

your purchase is safeguarded in the *only way it can be*—without a laboratory test.

Smart engineers and contractors are more critical now than ever before. They know that a tag or mark on a reel of rope is a most unreliable document—not worth risking lives or an accident.

The time is fast coming when no one will accept a Wire Rope without definite proof of grade such as is now provided by Williamsport Ropes. The seller is going to find it as easy to convince the user that the moon is made out of green cheese as to talk a user into believing a Wire Rope is made of a certain grade of steel without *proving* it by something more definite than the mark on a reel.

What users are demanding now is *proof that stays* with the rope—something which cannot be removed or altered.

The "Telfax" Tape in Williamsport Wire Ropes does this. It is put there by the men who actually make the rope, the only men *who* know the grade.

This protection is so vital to users that it is sure to be demanded by every user who wants to play safe.

### Williamsport Wire Rope Company

Main Office and Works:  
Williamsport, Pa.

Gen'l Sales Offices:  
Peoples Gas Bldg., Chicago



# These Features of Carr Road Forms

Are the Reasons Why They Appeal So Strongly  
to Both Engineers and Contractors

THE ROUND TOP—SELF  
CLEANING, ALLOWS NO  
CONCRETE UNDER WHEELS  
OF FINISHER

SECTIONS  
12 FEET  
INSTEAD OF 10.  
20% MORE FORM  
PLACED, WITH EVERY  
SECTION HANDLED

A 30-INCH WEDGE

THE WEDGE LOCK JOINT  
GIVES A RIGID CONNECTION  
AND ALIGNS TOP SURFACE

THE  
FLAT STAKE  
GIVES MAXIMUM  
GRIPPING POWER.  
MAY BE DRIVEN  
ANYWHERE ALONG  
BASE.

A 6-INCH WIDE BASE  
INSURES AMPLE BEARING

The Form That Was Designed For  
Mechanical Finishing

For Complete Details Send for Bulletin 45-S →

The Lakewood Engineering Company  
Cleveland, Ohio



Export Office—30 Church St., New York City

Lakewood Engineering Company, Cleveland, Ohio  
Please send me at once complete details about Carr  
Road Forms.  
Name .....  
Address .....  
S

"The Shovel Truck That Has Made History"

It rides the soft mud like a boat.

As sure footed as a goat on hill sides.

It climbs steep grades like a cat.

And a motor truck will trot it around.

During The Past Year

**L**AST year we made some startling claims for the new Center Drive Truck for Thew Shovels—"foolish claims," some folks said.

These claims probably did sound too good to be true to shovel users, in the face of past experience.

Anyway, we heard the merry Ha! Ha! as well as the honest doubts that always greet something radically new.

But all that is now a thing of the past.

Last year, shovel users had to take our word for Center Drive performance, and many of them did. Today a flock of Center Drives are talking for themselves all over the country. The past year has settled all doubts and proven every claim we made.

In fact, owners are boosting them in a way we never would have dared to do ourselves. You don't have to take our word now.

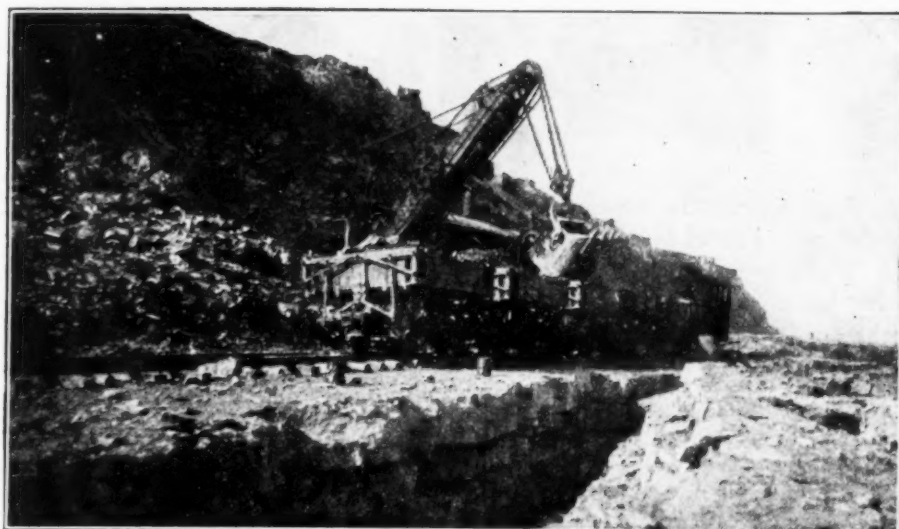
Laughs of derision have given place to smiles of satisfaction. Even those who wanted to see them fail, if they are honest, have to admit that they have made good.

The Center Drive principle is the most talked of shovel development of many years. We are frequently asked to put Center Drive Trucks under other makes of shovels.

If you are not fully informed regarding this vital shovel improvement you owe it to yourself to get the facts. Watch one at work, talk to a user or ask us for details.

THE THEW SHOVEL COMPANY, LORAIN, OHIO

# Thew Lorain Shovels



## Western Dump Cars Fit in with Schedules Calling for Speed!

**S**WIFT, positive action is only one of the requirements in a dump car built to give you the result you must have on a job that calls for speed. The main thing is strength—for strength means dependability.

WESTERN dump cars have the strength! Strength to stand up under the battering of rock, loaded with a big shovel. Strength to resist the terrific wrench of unbalanced loads. Strength to stand the twisting heave of quickly-laid, irregular rails.

Their wide door openings and steep dumping angle fit them for handling the most difficult of materials—tougher material than you would expect of them, everytime! This is because they have back of them the practical experience of practical men. Working knowledge—learned on the job—is in every WESTERN dump car.

*WESTERN dump cars are available in all sizes from 1½ yards to 50 yards. We shall appreciate an opportunity to tell you more about them.*



**Western**

*That's why!*

### Western Wheeled Scraper Company

Founded 1877

*Earth and Stone Handling Equipment*

AURORA, ILLINOIS



# CLYDE

## Standard Hoists and Derricks

### For the General Contractor

#### STEAM · ELECTRIC · GASOLINE · BELT

Clyde Hoisting Equipment is an important factor in building construction everywhere. Below is shown the new Hotel Redmont and the new Bankers Bond Building, both at Birmingham, Ala. A Clyde 40 H. P. two drum gasoline hoist as illustrated was used on each of these buildings for handling the concrete tower work.

*You'll take  
Pride  
in Your  
Clyde!*

*Somewhere in the Clyde Line is a hoist  
of the exact size and the correct motive  
power to fit your particular need. Infor-  
mation gladly given.*



## CLYDE IRON WORKS SALES COMPANY

Sole Distributors for CLYDE IRON WORKS, Duluth, Minn.

NEW ORLEANS  
309 Magazine St.

Stocks Carried in the Following Warehouses:  
NEW YORK CITY  
E. 136 St. and Locust Ave.

PORTLAND, ORE.  
555 Thurman St.

SEATTLE  
3410 First Ave. So.

CHICAGO  
11 So. La Salle St.

CINCINNATI  
1913 Union Central Bldg.

Branch Offices:  
MEMPHIS  
69 Union Ave.

JACKSONVILLE, FLA.  
43-45 W. Forsyth St.

SAN FRANCISCO  
50 Fremont St.



## Here's the most expensive workman in the world

**T**HIS fellow is big and husky. He has a 48-inch chest and a hand like a clam shell bucket. But he doesn't like to work.

He has a habit of sneaking on to contractor's payrolls. When he does the contractor says goodbye to profits.

### *The worst part*

of it is, he's hard to see. But watch for him when the mixer is waiting for materials. Hunt him up on the rainy days when the paving crew can't work.

You'll recognize him easily as the most expensive workman in the world. No doubt you'll remember his name—"Old Man Overhead."

### *When profits dwindle*

and disappear—when the bank balance follows suit—you'll see how little he has helped you. You'll see what a loafer he is.

And you'll see what keeps him fat and big. You'll see the expensive equipment that can't pay for its keep. You'll see the equipment that can't be used on short run work at a profit.

A Barber-Greene loading loosened sub-grade material for Arthur Hess, Redwood City, Calif. Barber-Greene makes money for their owners by handling such jobs as this in addition to loading and batching sand and gravel. Our booklet—"Contracting with Barber-Greene," shows the different jobs that Barber-Greene has been known to handle successfully.

You'll see the equipment that costs a lot to move, ship, erect and take down.

### *Maybe these things*

will make you so disgusted that you'll answer an advertisement like this one.

And you'll put a couple of Barber-Greene's to work loading and batching from convenient stock piles. And you'll see materials pouring into the mixer and you'll see a long stretch of fresh concrete every time the five o'clock whistle blows.

### *And you'll save*

money and time when you move to your next job. And you'll find your Barber-Greene's ready to go to work the minute they get there. And in the off seasons you'll use them for sub-grading, excavating and similar work.

"Old Man Overhead" will have to tighten up his belt strap and get to work. The red ink will disappear from your books. And maybe you'll buy a new sedan and take a trip to California or Florida that winter.

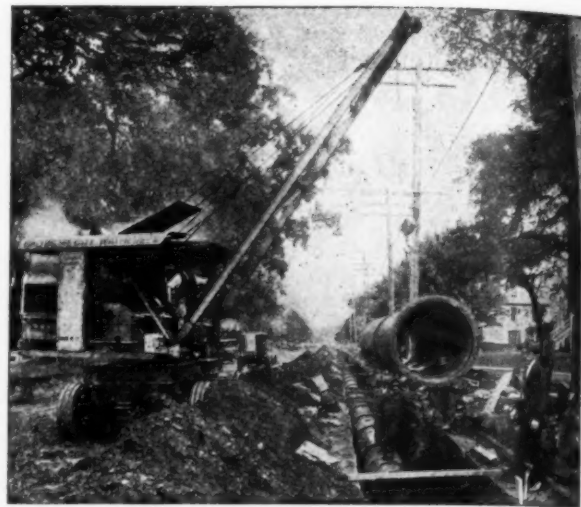
Barber-Greene layouts that are helping contractors to wipe "Old Man Overhead" off their payrolls are shown in our latest road book, "Contracting with Barber-Greene." It's free to contractors and your copy is waiting for you.



BARBER-GREENE CO.  
Representatives

530 W. Park Av., Aurora, Ill.  
in Fifty Cities

**BARBER GREENE**  
Portable Belt Conveyors      Self Feeding Bucket Loaders  
Coal Loaders      Automatic Ditch Diggers      Coal Feeders



## Universals Keep Busy The Year Round!



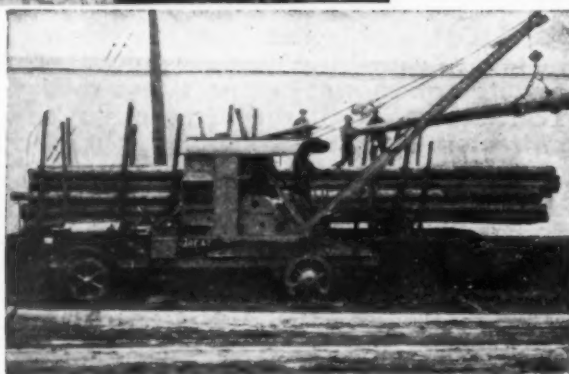
How else would owners in Cleveland, Detroit, New York, etc., keep fleets of 3 and 4 busy throughout the winter.

Snow removal, car unloading, steel erection, excavating, etc., are but a few of the jobs that produce profits for them the year round. Winters and Summers their Universals are always busy!

Bulletin 204-C tells why and shows the wide range of Universal earning power—ask for it!

*Wire or Write for  
Bulletin 204-C*

**The Universal Crane Co.**  
988 Swetland Bldg., Cleveland, O.



# UNIVERSAL





# "Satisfactory Now as Always"

John Grewe Construction Co.  
St. Louis, Mo.

Gentlemen:

On the Rosati-Kain High School job Sterling Wheelbarrows, and Concrete Carts are used throughout.

We like the Sterling Wheelbarrow due to its rigid leg construction. The self-lubricating wheel shaft and the manner in which the load is balanced over the wheel mean easy work for the men and they like them.

On the Rosati-Kain High School they were used for charging the mixer at the bottom, and Sterling Carts were used for wheeling concrete at the top floor. They worked out very nicely on this job as they always have, and we will continue using them in the future.

Yours truly,

JOHN GREWE CONSTRUCTION CO.

*L. J. Ballard*

Bulletin 39 tells  
the story  
Ask for it



Flush Riveted Spokes give  
Smooth Tread. A very  
important detail and

Only One of the Many  
in Sterling Wheelbarrow  
Construction.

## STERLING WHEELBARROW COMPANY

STERLING ON A WHEELBARROW MEANS MORE THAN STERLING ON SILVER

Milwaukee

MANUFACTURED FOR THE EUROPEAN MARKETS BY —  
STERLING FOUNDRY SPECIALTIES LTD STERLING WORKS, BEDFORD, ENGLAND

Wisconsin

Warehouse Stocks And Leading Dealer Stocks Everywhere

# The Rise of the small town

A good road is a perpetual invitation. It beckons city dwellers—it leads away from high rents, congested districts and down-town noise.

Over good roads come new people to build and man factories—to grow crops. And over the same roads the products of factory and farm travel to the city market.

For building roads and maintaining them "Caterpillar" Tractors supply dependable power. Every community, every engineer interested in good roads is equally interested in "Caterpillar" Tractors. Folders and catalogs telling of their accomplishments are gladly sent on request.

## CATERPILLAR TRACTOR CO.

Executive Offices

SAN LEANDRO, CALIFORNIA, U. S. A.

Factories: San Leandro, Calif.  
Stockton, Calif., Peoria, Ill.

Offices: New York City  
San Francisco.

Successor to

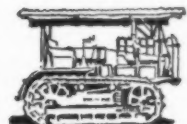
BEST C. L. Best  
Tractor Co

The Holt Manufac-  
turing Company

HOLT



10-TON



SIXTY



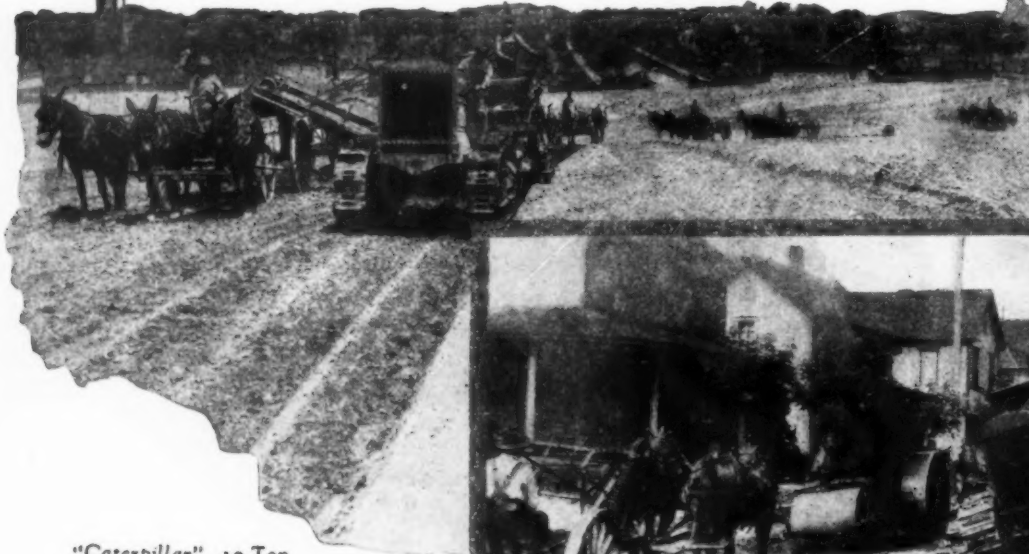
5-TON



THIRTY



2-TON



"Caterpillar" 10-Ton  
preparing an industrial  
site on the outskirts of a  
thriving small community

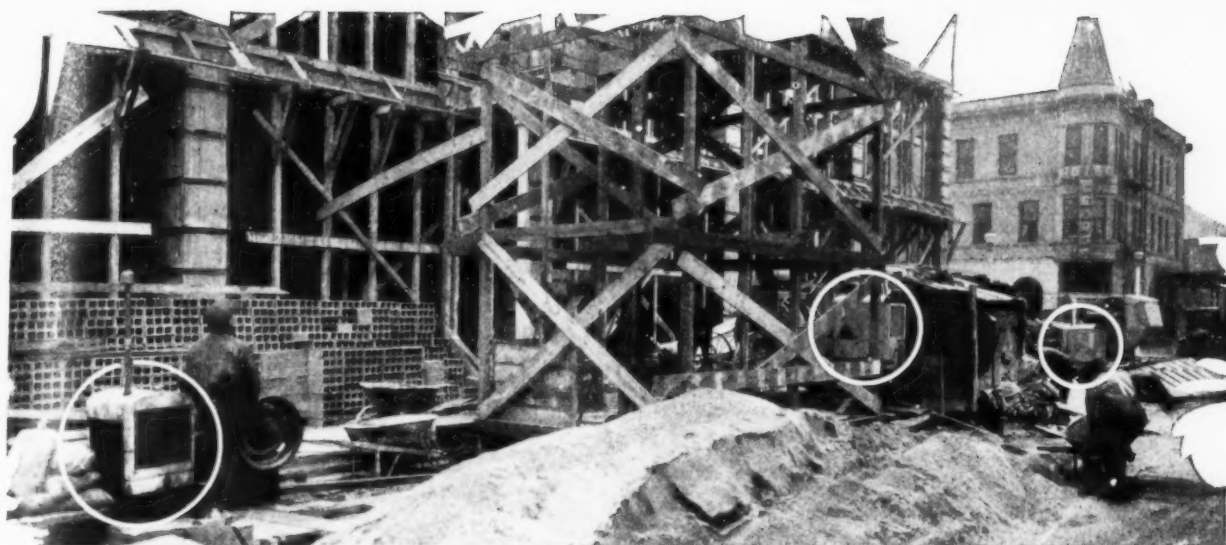


Preparing for prosperity! This "Cat-  
erpillar" Sixty is the leader of the  
better road movement

81-1083

**CATERPILLAR**  
REG. U. S. PAT. OFF.





## Where Progress is Measured by Power!

**B**UILDING "penalties" are thorns in the sides of many a contractor. Particularly in the now-a-day construction work when speed is imperative. To cope with modern construction methods, equipment must be constant performers, they must be time-savers. And back of it all the *progress is measured by power.*

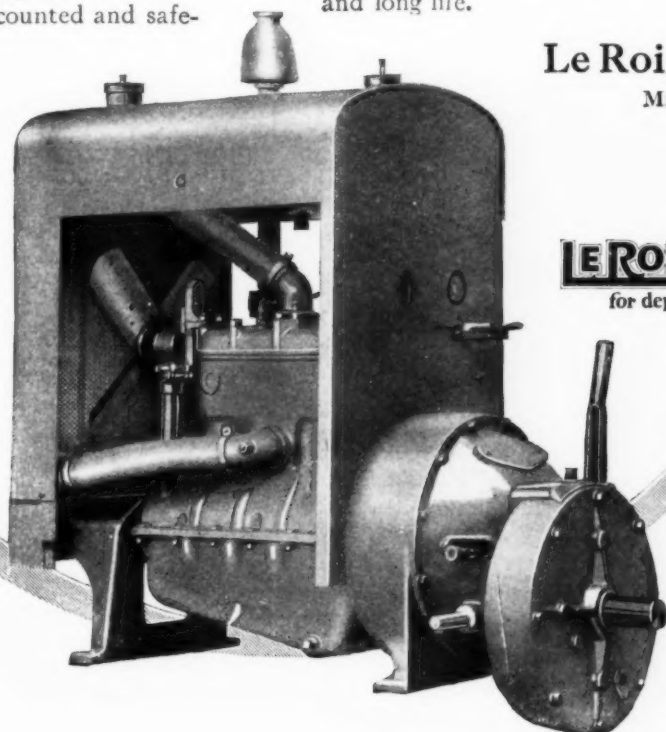
In the case of the Nelson Corporation who recently built the Zahn Department Store at Racine, Wis., three Le Roi Engines were important factors in getting the building up on "schedule." One Le Roi was 5 years old, another 4 and the third 3 years—but all gave the same continuous every minute of the day service that really counted and safeguarded the contractor's profit.

Such performance is typical of Le Roi Engines. Their astonishingly low repair part costs—indicative of reliable power—have gained for them world-wide acceptance and established their high standard.

Look to the Le Roi for dependable power and long life.

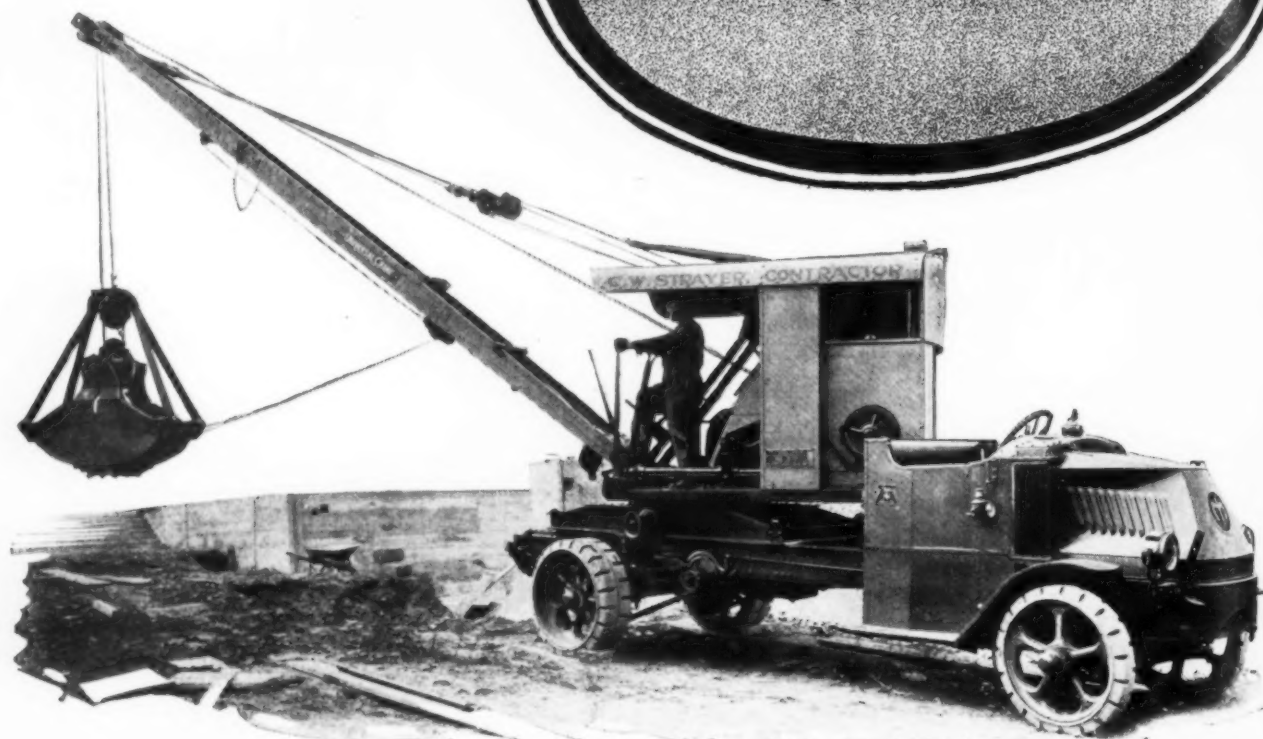
**Le Roi Company**  
Milwaukee

*Engine Builders  
only!*



**LE ROI ENGINES**  
for dependable power!





Due to his firm conviction that handling every contract in the most modern and efficient manner is essential to success, the name of C. W. Strayer is usually connected with great contracting jobs in and around Harrisburg, Pa. The latest piece of equipment that Mr. Strayer has acquired is a Universal Crane mounted on a MACK chassis.

This MACK unit, illustrated above, has already played an important part in the building of a new high school for which an enormous amount of excavating, re-filling and grading was necessary. Mr. Strayer claims that his MACK unit has not only speeded up the work but materially cut down labor costs.

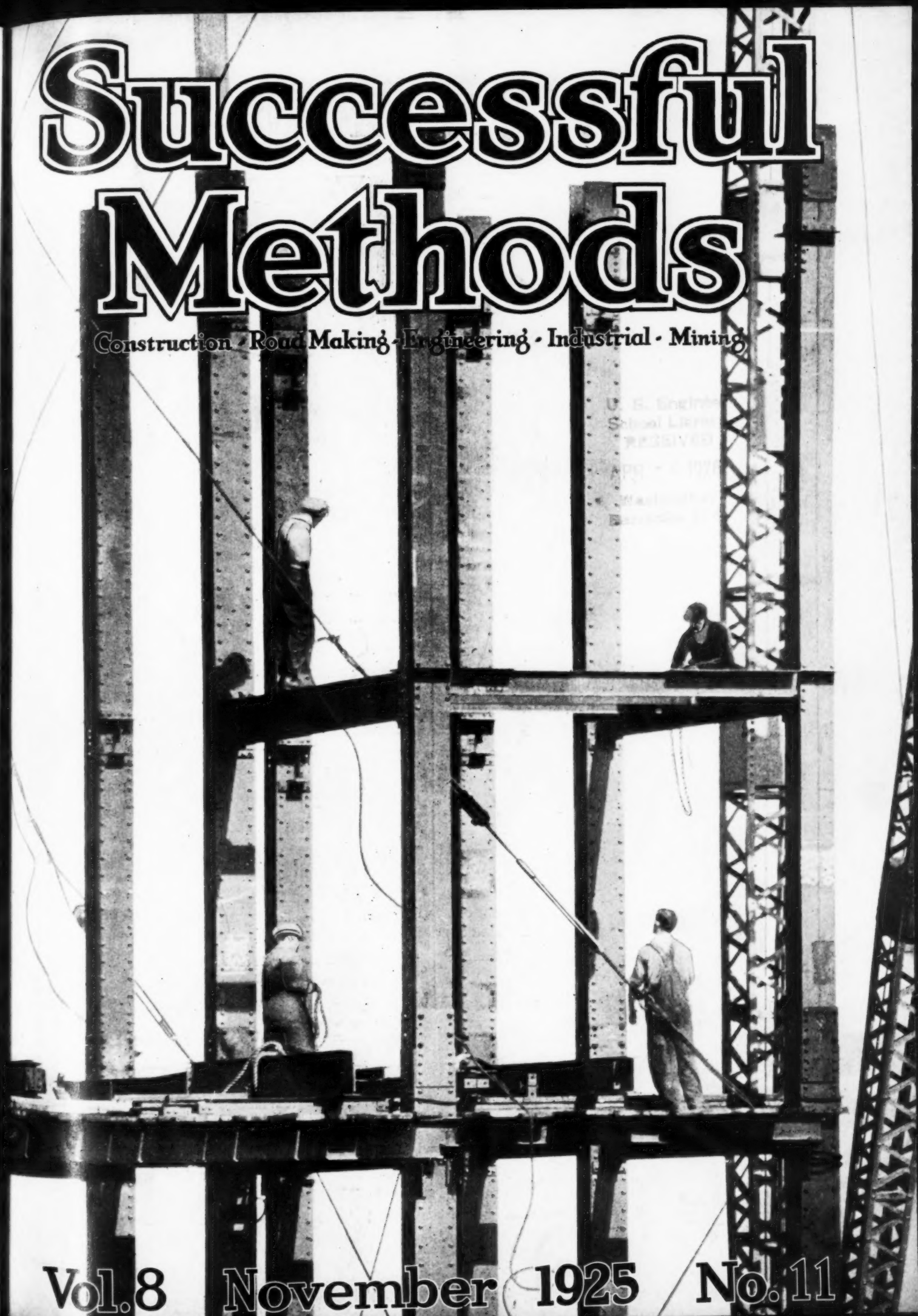
**MACK TRUCKS, Inc.**  
INTERNATIONAL MOTOR COMPANY  
25 Broadway, New York City

Ninety-five direct MACK factory branches operate under the titles of: "MACK-INTERNATIONAL MOTOR TRUCK CORPORATION" and "MACK MOTOR TRUCK COMPANY."

**PERFORMANCE COUNTS**

# Successful Methods

Construction · Road Making · Engineering · Industrial · Mining

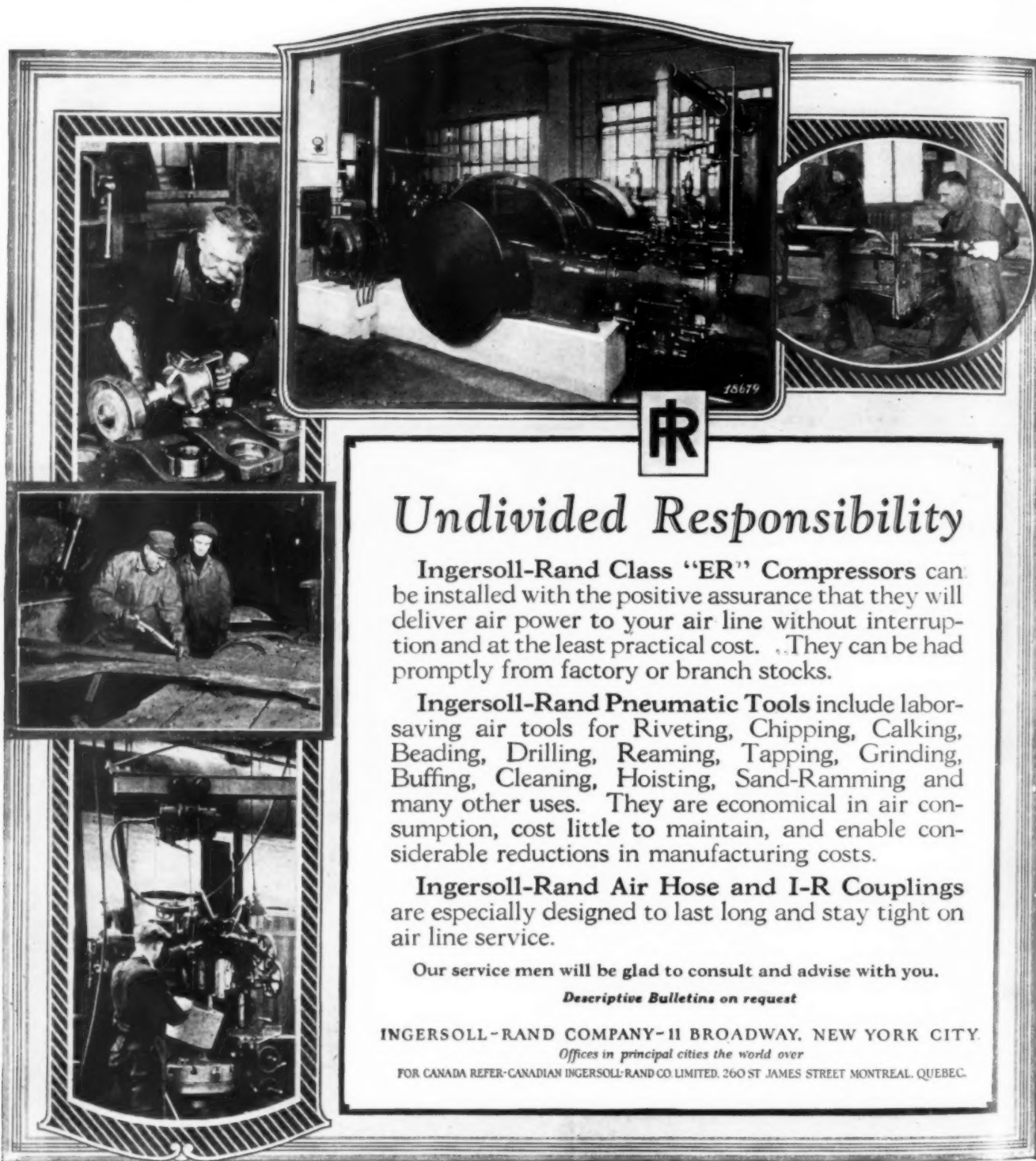


Vol. 8

November 1925

No. 11

# Ingersoll-Rand Service on both ends of your air line



**Undivided Responsibility**

Ingersoll-Rand Class "ER" Compressors can be installed with the positive assurance that they will deliver air power to your air line without interruption and at the least practical cost. They can be had promptly from factory or branch stocks.

Ingersoll-Rand Pneumatic Tools include labor-saving air tools for Riveting, Chipping, Calking, Beading, Drilling, Reaming, Tapping, Grinding, Buffing, Cleaning, Hoisting, Sand-Ramming and many other uses. They are economical in air consumption, cost little to maintain, and enable considerable reductions in manufacturing costs.

Ingersoll-Rand Air Hose and I-R Couplings are especially designed to last long and stay tight on air line service.

Our service men will be glad to consult and advise with you.

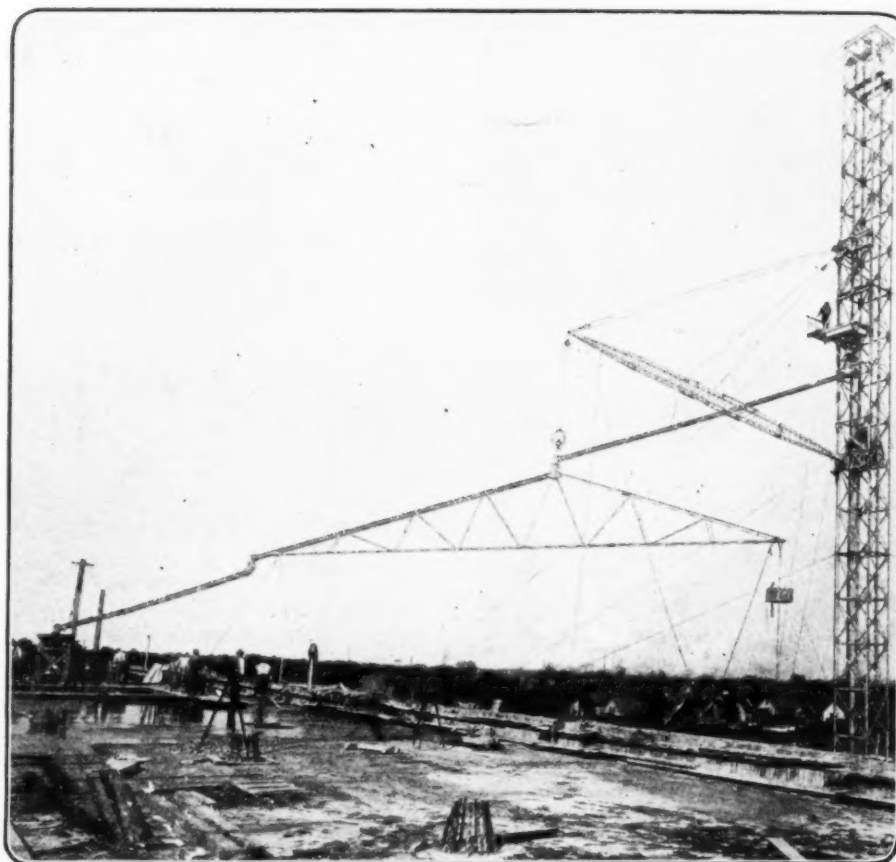
*Descriptive Bulletins on request*

INGERSOLL-RAND COMPANY-11 BROADWAY, NEW YORK CITY  
Offices in principal cities the world over  
FOR CANADA REFER- CANADIAN INGERSOLL-RAND CO. LIMITED, 260 ST. JAMES STREET MONTREAL, QUEBEC.

825-C

# Ingersoll-Rand





*The Hunkin-Conkey Construction Company's plant in operation.*

## *Twelve Years of Experience*

with Lakewood Concrete Placing equipment guided the Hunkin-Conkey Construction Company, Cleveland, O., in their recent purchase of a 180-ft. Lakewood Steel Tower and Chuting Plant—for this rush job—where speed and greater capacity were absolutely required.



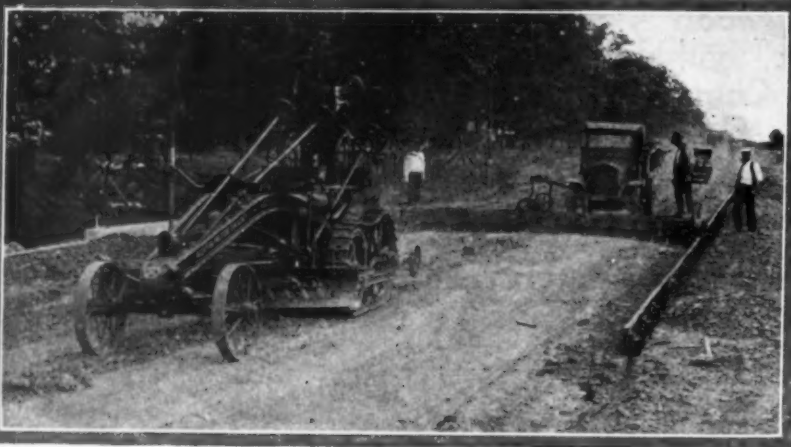
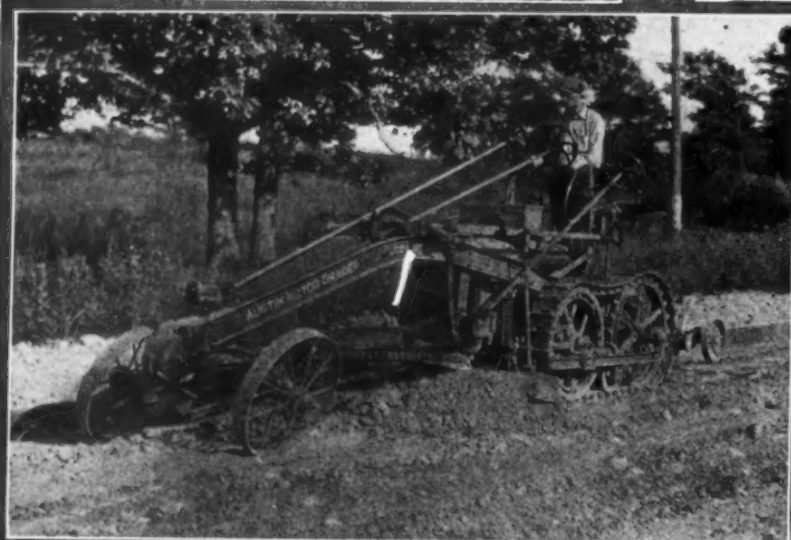
*Bulletin 23-S gives complete details.  
Write for a copy.*

# **The Lakewood Engineering Company**

Cleveland, U. S. A.  
Export Office: 30 Church St.  
New York City



# AUSTIN MOTOR GRADER ON SUBGRADE



**T**HERE are at least six separate jobs for an Austin Motor Grader on subgrade—six places where it will save time, labor and, consequently, money for you.

1. On the spill when filling to rough grade.
2. Keeping the entire grade smooth for the trucks.
3. On the rough grade ahead of the subgrader.
4. Pulling the subgrader.
5. On the fine grade ahead of the mixer.
6. On the shoulders of the finished pavement.

Other uses will probably suggest themselves to you, but these six are enough to enable the machine to pay for itself in a short time.

In the upper illustration, the rear scarifier (an exclusive Austin feature) is being used to remove a hard and stony high spot on the rough grade. In the center illustration, the blade is piling up the scarified material for the shovellers—the leaning front wheels (another exclusive Austin feature) preventing the front end of the machine from skidding into the forms—while in the lower illustration, the subgrader is adding the finishing touch.

Austin Motor Graders are furnished with plain steel wheels, rubber-tired wheels, or Crawler Tread; and with center or rear scarifier. Space does not permit even a brief description of the many worthwhile features of these machines, but the coupon will bring you by return mail a copy of the catalog, which tells what we are sure you will find a most interesting story.

I would like a copy of the  
Motor Grader Bulletin

\_\_\_\_\_

\_\_\_\_\_

**THE AUSTIN-WESTERN ROAD MACHINERY CO**  
HOME OFFICE · 400 N · MICHIGAN AVE · CHICAGO  
· · · · · BRANCHES IN PRINCIPAL CITIES · · · · ·

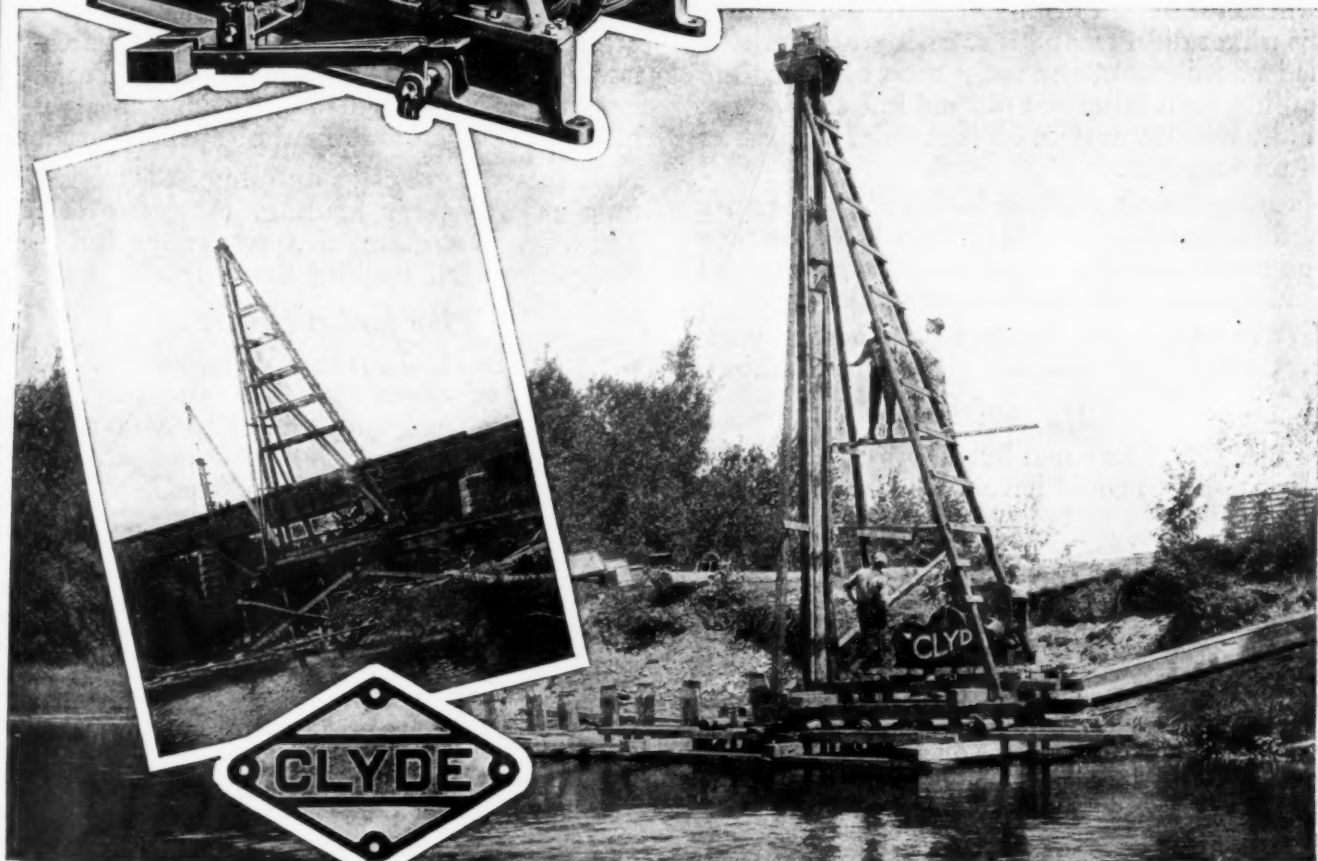
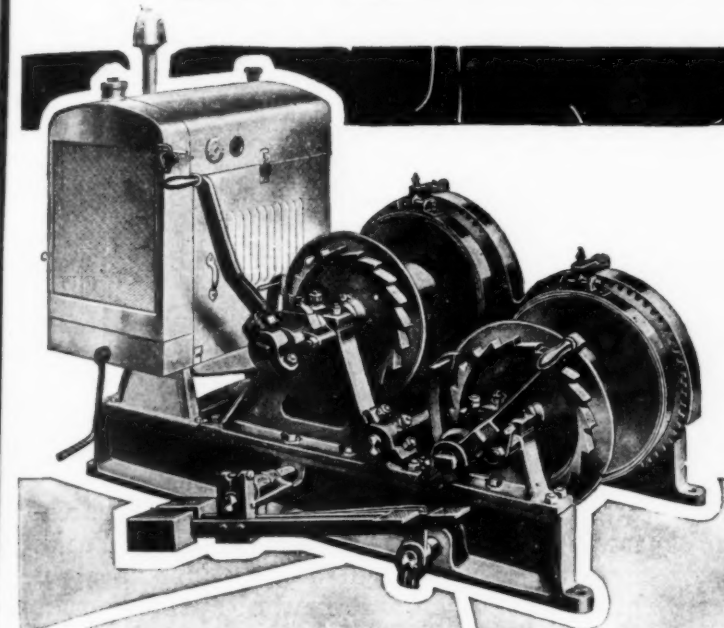
# CLYDE

## Standard Hoists and Derricks

### For the General Contractor

#### STEAM · ELECTRIC · GASOLINE · BELT

Clyde Gasoline Hoists shown driving piles in the highway bridge construction pictures herewith are rendering satisfaction-plus. The 15 H. P. two drum hoist on the left is handling a 1200 lb. hammer and a 600 lb. follower cap on the end of a 38 ft. boom, while a 2000 lb. hammer and a 700 lb. follower is being taken care of on the 50 ft. pile tower. The same size hoist on the right is handling an 1800 lb. hammer on a single line. It will be a pleasure to furnish complete information about this or any other unit of the Clyde line.



## CLYDE IRON WORKS SALES COMPANY

Sole Distributors for CLYDE IRON WORKS, Duluth, Minn.

*Stocks Carried in the Following Warehouses:*

NEW ORLEANS  
309 Magazine St.

NEW YORK CITY  
E. 136 St. and Locust Ave.

PORTLAND, ORE.  
555 Thurman St.

SEATTLE  
3410 First Ave. So.

*Branch Offices:*

CHICAGO  
11 So. La Salle St.

CINCINNATI  
1913 Union Central Bldg.

MEMPHIS  
69 Union Ave.

JACKSONVILLE, FLA.  
43-45 W. Forsyth St.

SAN FRANCISCO  
737 Monadnock Bldg.





## Oh! How it rained one Wednesday

**A**ND a contractor swore all day long, because he couldn't work his mixer. And he swore all day Thursday, because his grade was soft and slippery as a piece of soap after a hard Saturday night in the bath tub. He didn't dare to put a truck on it.

### On Friday, the

contractor started his mixer again. But starting his mixer didn't stop his swearing. His trucks had a 3 mile haul and spent most of their time pulling each other out of mud holes. The net result was 199 feet of 18-foot slab and 3 miles of torn up grade.

Saturday wasn't a whole lot better. The entire outfit seemed to be out of kilter. Need we note the net result: 270 lineal feet of concrete and 8 additional men working on grade.

So when the contractor happened across an advertisement like this one, it set him thinking.

### "If," said he

to himself, "I had had but a half mile haul last Wednesday, I could have drained off my grade

and dumped a couple loads of gravel in the soft spots.

"And I'll bet I could have had my mixer going by Thursday noon."

So he answered the advertisement. One week later, he received his copy of "Contracting with Barber-Greene." In it, he saw and read how other contractors were licking their material handling troubles.

And he said, "That's the system for me."

### On that Contractor's

next job it rained one Wednesday. And the contractor swore all day long, as per usual. But his materials were stored in stock piles that gave him an average grade haul of but half a mile.

Half a day of intensive draining fixed that half mile of grade for hauling. At one o'clock Thursday afternoon, his two new Barber-Greene's started loading batch trucks.

### By five o'clock,

the mixer had laid 201 feet of 18-foot slab. And the contractor, not only quit swearing, but actually went out and bought his wife a new wrist watch. When a fellow does that, it's a pretty good sign he's tickled to death.

*A Barber-Greene Loader working for a Pittsburgh contracting company.*

*Working from stock piles located at street intersections but short distances apart, this machine moved along the job under its own power.*

*And this system reduces hauling units to three three-batch trucks — each batch containing 18 cubic feet.*

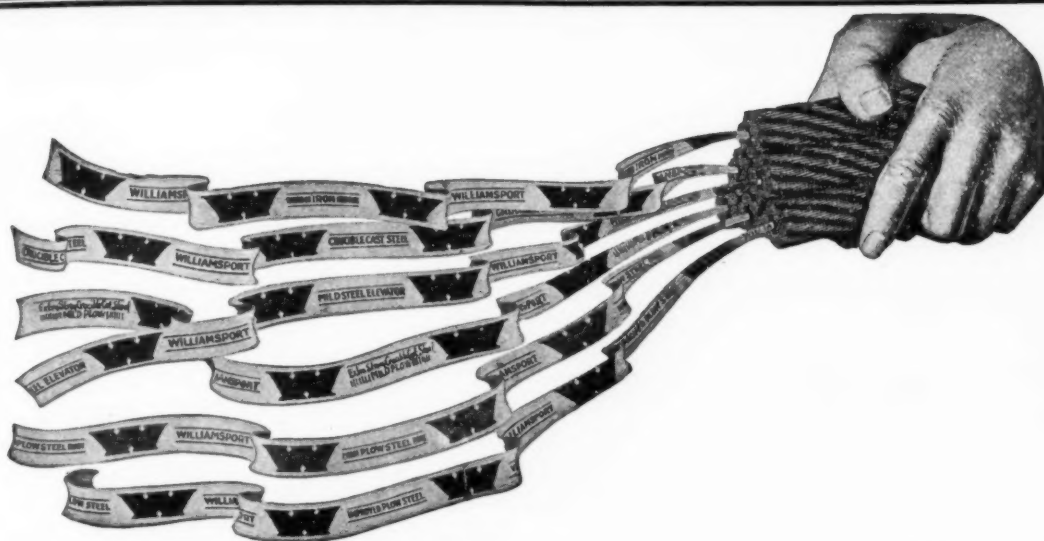
*The latest Barber-Greene Road Book shows the material handling layouts that have been conspicuously successful during the past year. Your copy is waiting for you.*



BARBER-GREENE CO.  
Representatives

530 W. Park Av., Aurora, Ill.  
in Fifty Cities

**BARBER GREENE**  
Portable Belt Conveyors — Self Feeding Bucket Loaders  
Coal Loaders . . . . . Automatic Ditch Diggers . . . . . Coal Feeders



# Does it pay to play your luck in a gamble with human life?

Many rope accidents are caused from unknowingly using the wrong grade. For this reason, as a protection against this, every grade of

## WILLIAMSPORT WIRE ROPE

is marked in plain English by a Telfax Tape woven into and throughout its length.

No other make of Wire Rope is marked in such certain and definite way.

Until Williamsport gave Wire Rope users this protection, there was some excuse for getting the wrong grade of rope into service.

Today, there is **NO EXCUSE** for any user making this mistake.

The good name of any maker is not a guarantee against mistakes. The "Telfax Tape" system of protection is the only sure protection.

It can only be found in "Williamsport."

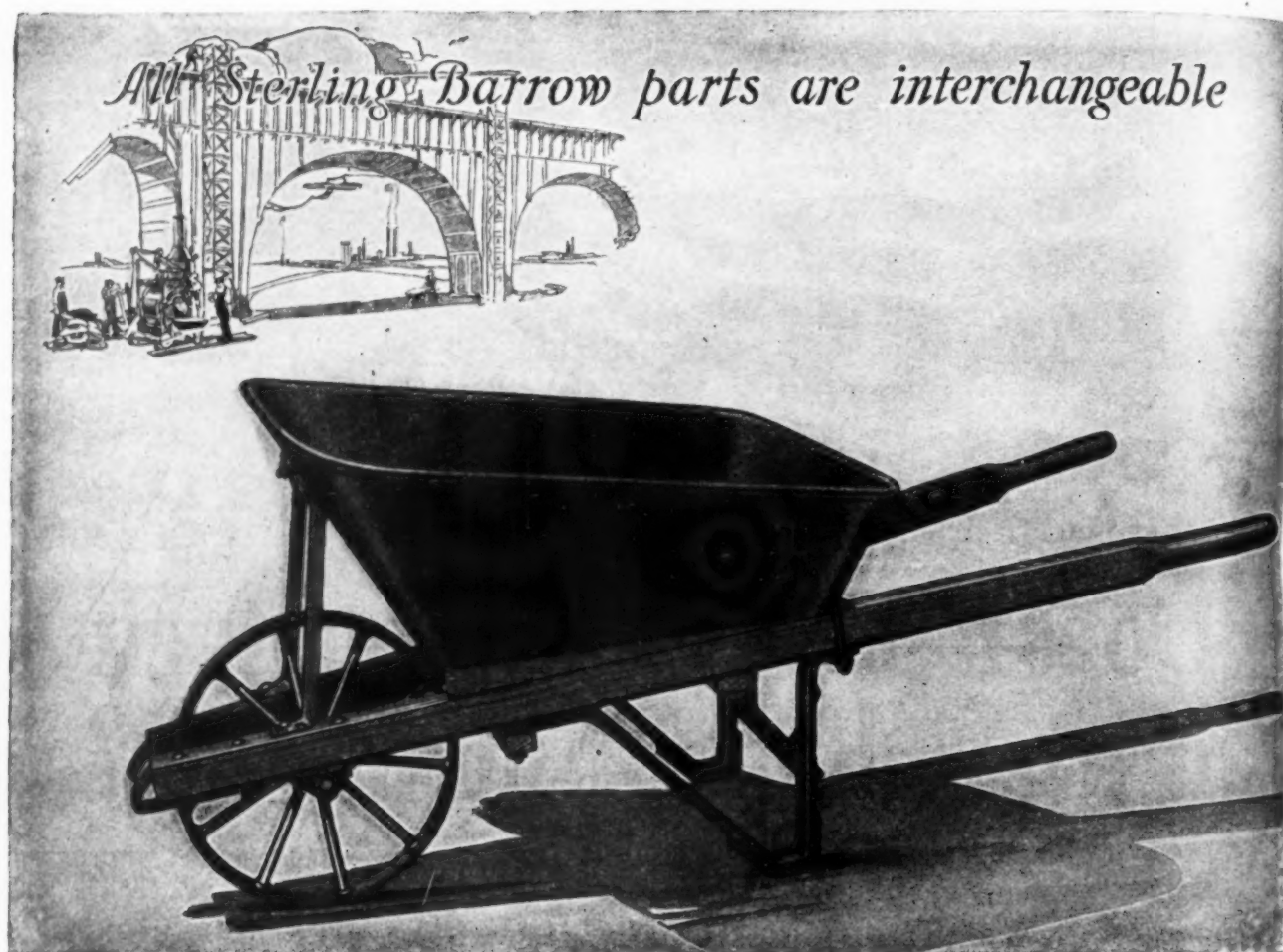
If you haven't had your accident yet from using the wrong grade of rope—Knock on Wood.

### WILLIAMSPORT WIRE ROPE COMPANY

Main Office and Works:  
Williamsport, Pa.

Gen'l Sales Office  
Peoples Gas Bldg., Chicago, Ill.

# WILLIAMSPORT



## *Any Part Will Fit if It's a Sterling*

As it has paid us to standardize our product, so it will pay you to standardize your purchases.

It costs extra in time and money to keep a miscellaneous assortment of wheelbarrows in repair. First, to find out what repair is needed, and then to locate the desired repair.

All Sterling parts are interchangeable. Any part will fit if it's a "Sterling." All tray holes are punched alike, regardless of the capacity of tray. One size and style leg, one size and style wheel. All handles are bored alike.

If all of your wheelbarrows are "Sterling's" you can cash in to the limit on every part. You can interchange parts of old barrows to assemble new ones. When you need repairs, you can get them close at hand from some one of hundreds of Sterling agents. Just order a handle, wheel, leg or tray—IT WILL FIT.

# Sterling Wheelbarrow Company

NEW YORK  
BOSTON  
CLEVELAND

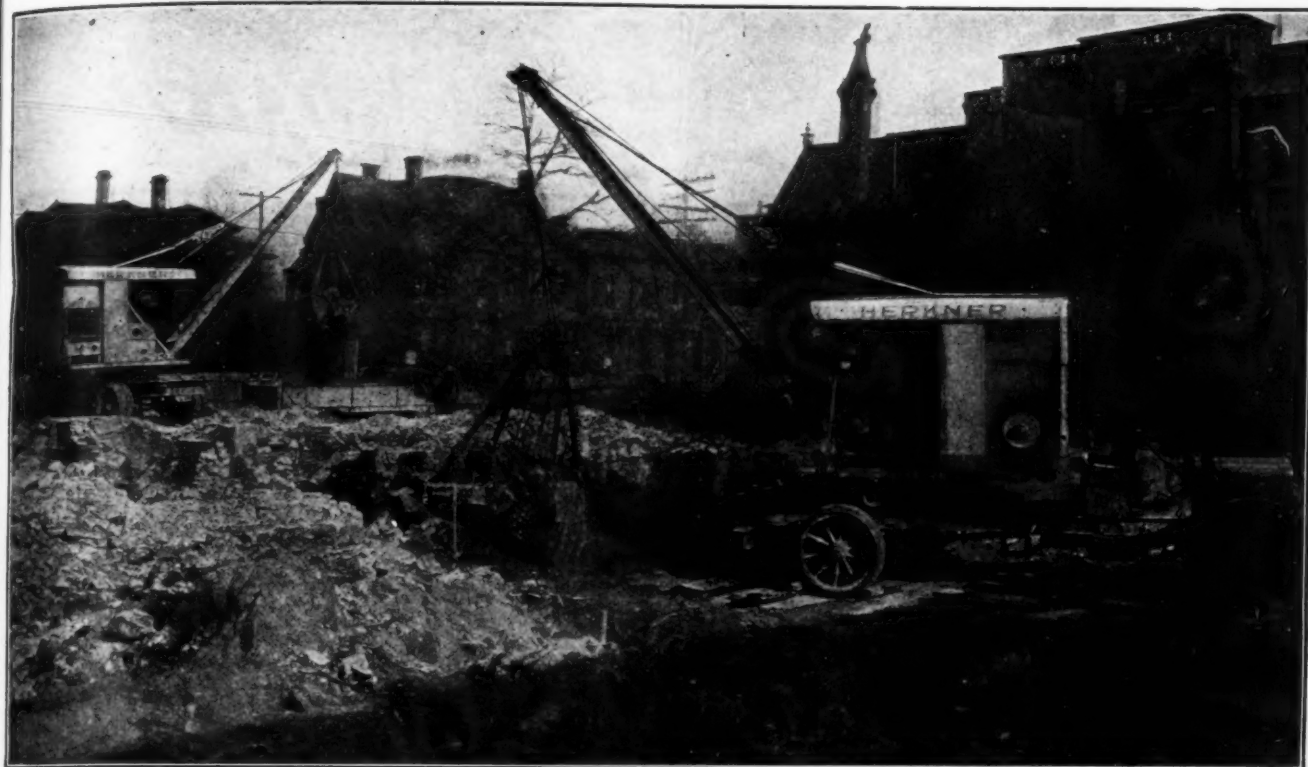
MILWAUKEE, WIS.

DETROIT  
CHICAGO  
ST. LOUIS

CANBERRA, AUSTRALIA; HONOLULU, HAWAII; LONDON, ENGLAND; TORONTO, CANADA; VANCOUVER, CANADA

EXPORT DEPARTMENT  
ALMACOA - ALLIED MACHINERY COMPANY OF AMERICA - ALMACOA  
31 Broadway, N.Y. New York, U.S.A. Canada: Toronto, Ont.





## Mounted On Used Motor Trucks Each Universal Earns \$50-\$100 a Day!

These full revolving "Universals" were driven to this job quickly and cleaned it up in a hurry. They each earn from \$50 to \$100 daily for their owner. On special work they earn more. They unload cars of material, handle cellar excavations and other jobs at big profits, jobs that would not justify the expense of moving any other locomotive crane or shovel to them.

You can drive a Universal to a job at motor truck speed and it is ready to work the instant it gets there. No outriggers are necessary and the quick  $5\frac{1}{2}$  r.p.m. swinging rate and high hoisting speeds often mean as big a day's

work as larger machines. Under ordinary conditions a Universal is capable of handling one car of sand, coal, broken stone, etc., per hour at a total cost of \$10 to \$15 a day—only one operator required for crane and truck. Crane is transferable from one to another of the following mountings:

Motor Truck  
Trailer  
Steel Wheel Yard Truck  
Continuous Tread Truck  
Railroad Flatcar Carriage

Power—Gasoline or Electric—100% Over-powered.

**Send for Bulletin No. 204-G**

**The Universal Crane Co., 998 Sweetland Bldg., Cleveland, Ohio**





*Wherever  
you want  
daylight!*

Wherever there is darkness to be banished, —in tunnels or basements in the daytime, or on the construction job on the surface at night —speed the work with the Carbic Light.

The Carbic Light is so portable it can be quickly moved anywhere. Down underground it proves its merits because it can be constantly moved close up to the work and it does not vitiate the atmosphere. Its brilliant, steady glow gives a diffusive light that most nearly approaches actual daylight, supplying best possible working conditions.

And aside from its efficient light and portability, the Carbic Light is economical to operate. It burns CARBIC CAKES which yield a pure gas that burns for twelve hours without attention.

For the sake of safety, economy, portability, and faster speed on the work, get the Carbic Light.

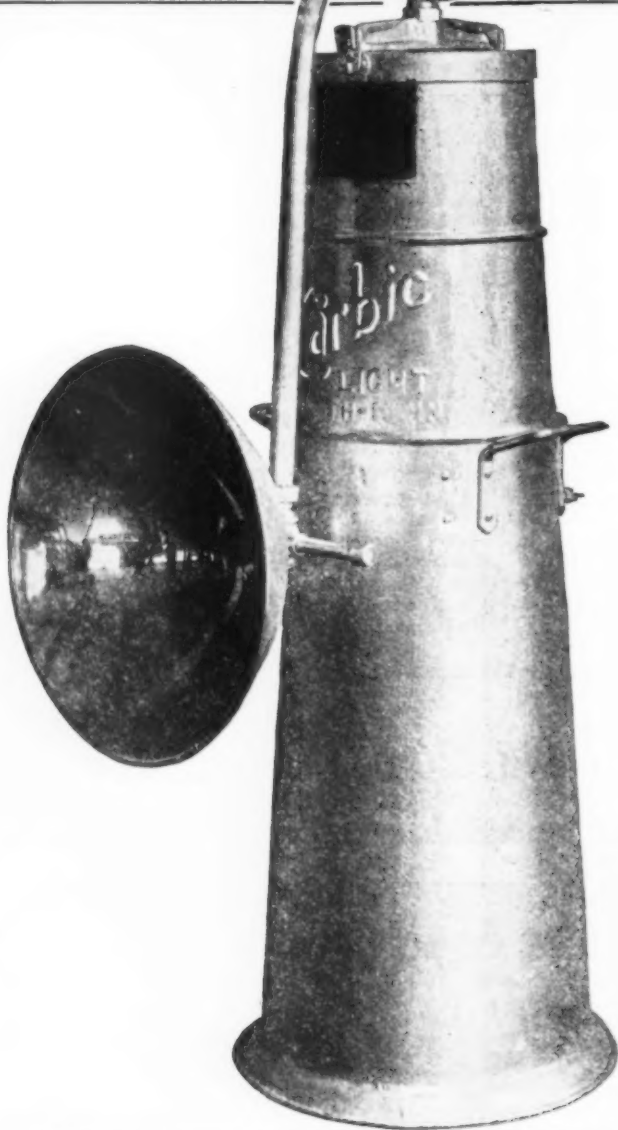
## Carbic Manufacturing Co.

*Duluth, Minn.*

New York: 141-149 Centre St.  
Boston: 50 Terminal St.  
Chicago: 3914 So. Wabash Ave.  
Los Angeles: 1941 No. Commonwealth Ave

Jobbers or representatives in all principal cities.

*Carload stocks in all sections*





## No Repairs or Upkeep!

**"THREE** years continuous service—no repairs or upkeep costs—no trouble in any way. I have used the Le Roi Engine on a drag line to dig gravel. I would not ask for anything better or simpler to operate." This is a report recently received from C. A. Goble, Charlotte, Mich.

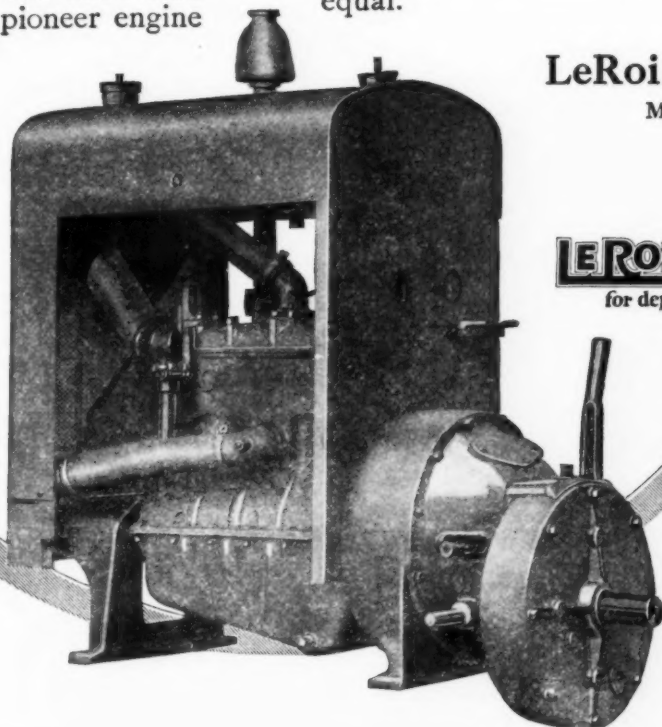
The experience of this contractor is gratifying but not surprising. Hundreds of Le Rois in other fields are giving the same trouble-free service.

Le Roi Engines are designed and constructed with all the care and precision known to pioneer engine builders who do only that.

The significant fact about the Le Roi Engine is its surprisingly low average repair part cost per year. This assures a lower operating and maintenance cost than other engines of this type can equal.

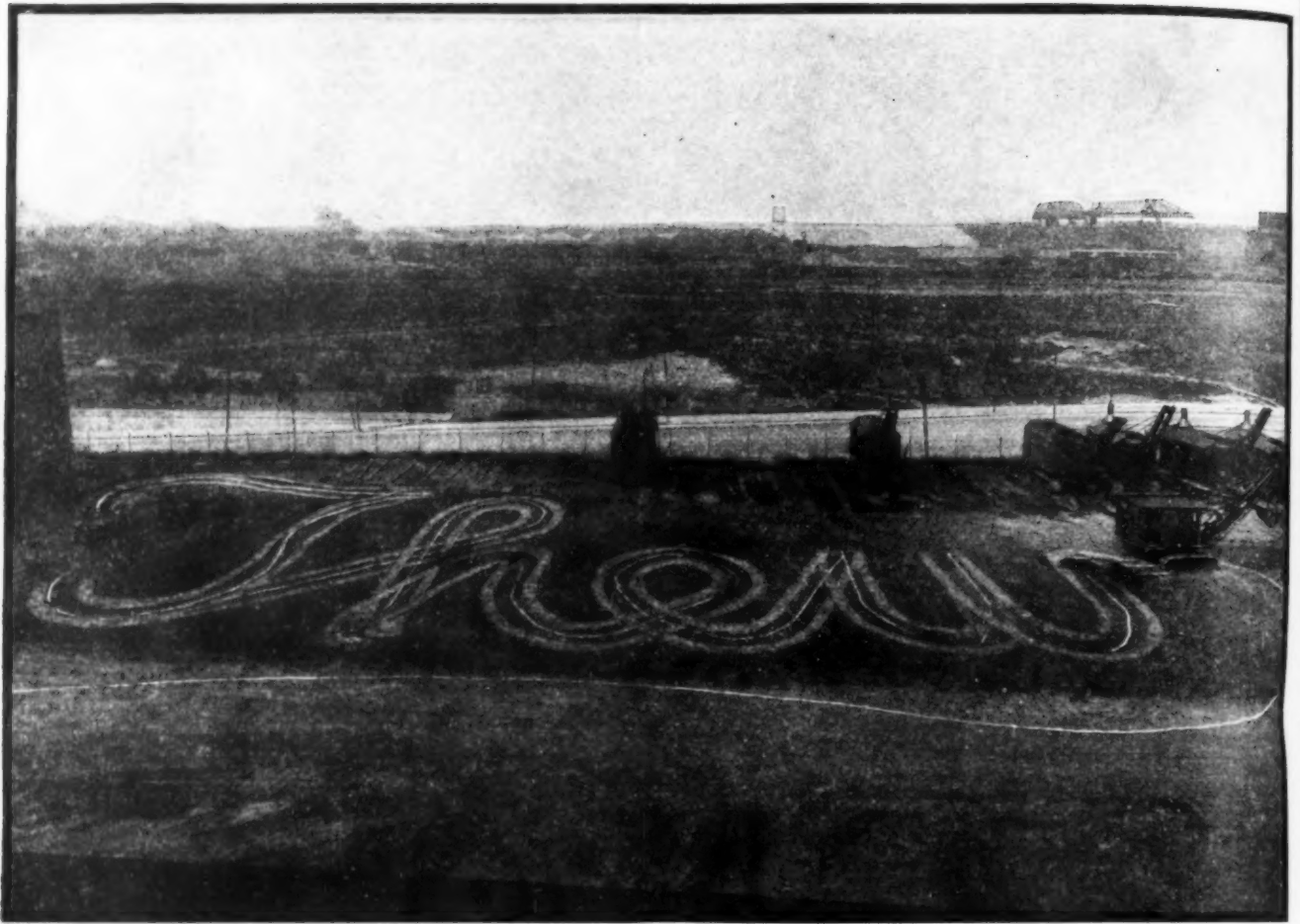
**LeRoi Company**  
Milwaukee

*Engine Builders  
only!*



**LEROI ENGINES**  
for dependable power!





*It writes  
its own  
story.*

**With the CENTER DRIVE Truck**

THE THEW SHOVEL COMPANY, LORAIN, OHIO

**Thew Lorain Shovels**



## Western Dump Cars Are the Result of Nearly Fifty Years Experience

**T**HERE is nothing theoretical about your WESTERN dump cars! They grew up on the job. For years WESTERN dump cars have played an inconspicuous but mighty important part in every sort of work in which dump cars can be used.



**Western**

*That's why!*

The harshest criticism that practical driving engineers could give has been eagerly sought, and is still sought to-day. The result is a car without weak points, made to deliver, and deliver fast.

That is why when you buy a WESTERN dump car you buy results. They are inconspicuous—because they never call attention to themselves by failing in a pinch. You forget about them like the fingers on your hand—until someday they astonish you by taking more punishment than you thought ANY car could stand!

*WESTERN dump cars are available in all sizes from 1½ yards to 50 yards. We shall appreciate an opportunity to tell you more about them.*

### Western Wheeled Scraper Company

Founded 1877

*Earth and Stone Handling Equipment*

**AURORA, ILLINOIS**



**D**URING the past winter, MACK motor truck crane units definitely established their indispensability in snow removal work, as an important adjunct to the street cleaning departments of the larger cities throughout the country. In many cases one crane and two laborers easily performed tasks that formerly required a gang of 45 laborers.

This is but another instance of the hundreds of uses to which this unit may be put under any and all conditions, assuring year-round revenue producing performance. Due to its rugged construction, the MACK chassis has proven an ideal transport base for this type of equipment.

MACK TRUCKS, INC.  
INTERNATIONAL MOTOR COMPANY  
25 Broadway, New York City

Ninety-five direct MACK factory branches operate under the titles of: "MACK-INTERNATIONAL MOTOR TRUCK CORPORATION" and "MACK MOTOR TRUCK COMPANY."

**PERFORMANCE COUNTS**



# Successful Methods

Construction • Road Making • Engineering • Industrial • Mining

U. S. Engineer  
School Library  
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APR - 6 1926

Washington  
Barracks

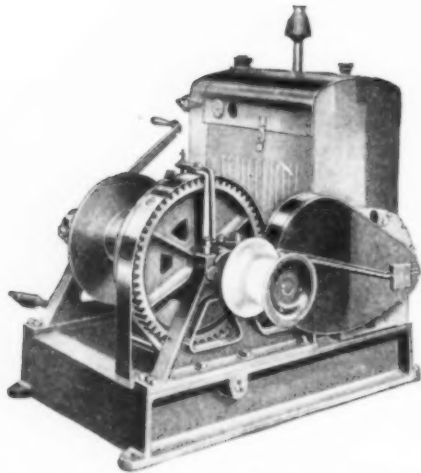


Vol 7 December 1925 No 12

# CLYDE

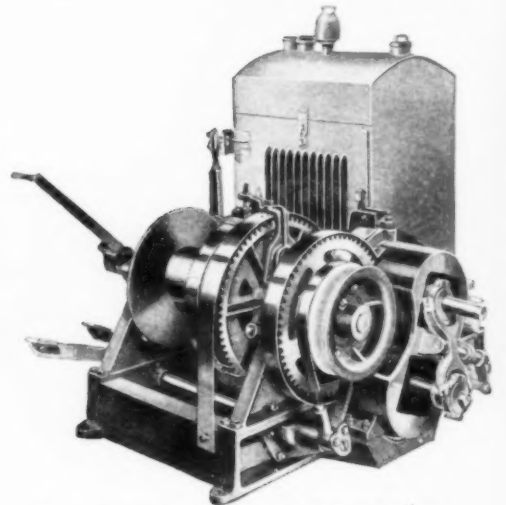
## Standard Hoists and Derricks For the General Contractor

### STEAM · ELECTRIC · GASOLINE · BELT

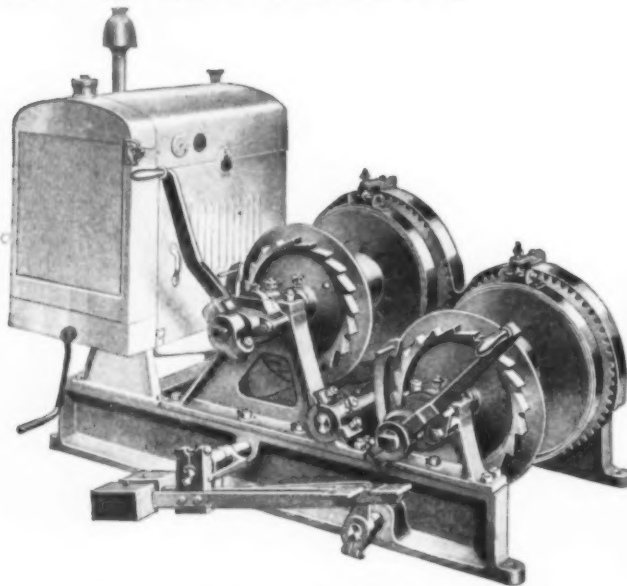


One Drum Gasoline Contractors' Hoist

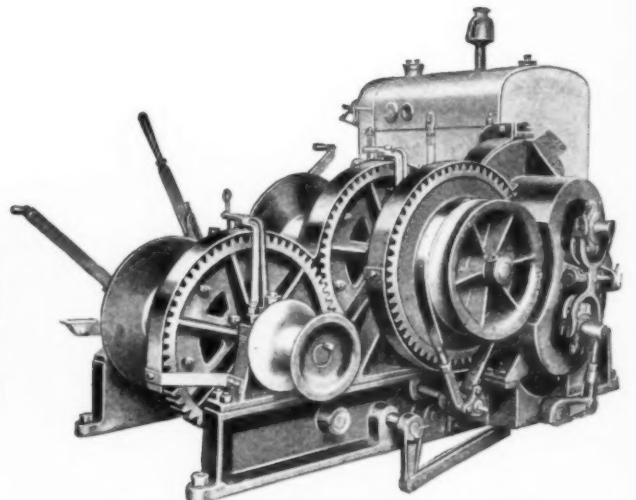
You will find illustrated a group of Clyde gasoline units, designed to meet every need of the contractor or builder. A complete range of sizes.



One Drum Gasoline Builders' Hoist



Two Drum Gasoline Contractors' Hoist



Two Drum Gasoline Builders' Hoist

The home office or any branch will be pleased to give you detailed information as to construction and operating costs at any time.

"YOU'LL TAKE PRIDE IN YOUR CLYDE"

## CLYDE IRON WORKS SALES COMPANY

Sole Distributors for CLYDE IRON WORKS, Duluth, Minn.

NEW ORLEANS  
309 Magazine St.

*Stocks Carried in the Following Warehouses:*  
NEW YORK CITY  
E. 136 St. and Locust Ave.

PORTLAND, ORE.  
555 Thurman St.

SEATTLE  
3410 First Ave. So.

CHICAGO  
11 So. La Salle St

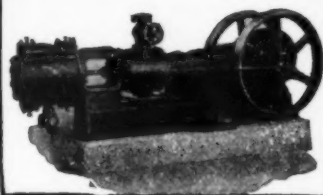
CINCINNATI  
1913 Union Central Bldg.

*Branch Offices:*  
MEMPHIS  
119 Monroe Ave.

JACKSONVILLE, FLA.  
43-45 W. Forsyth St.

SAN FRANCISCO.  
50 Fremont St.

# FOR SATISFACTORY AIR COMPRESSOR SERVICE *Specify* Ingersoll-Rand



## Ingersoll-Rand Class "FR" Compressors

Straight - line, single - stage, double - acting, steam - driven compressors, built with a balanced piston steam valve and a "Wide-Range" Automatic Cut-off Flywheel Governor.

With these two features, Class "FR" Compressors obtain steam economies far exceeding those obtainable with compressors using a flat type of slide valve and throttle governor.

## How Much Does a Lost Day Cost You?

"Continuous reliable performance is the most important factor to consider when buying machinery."

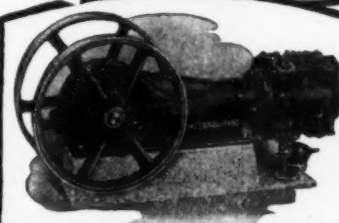
Ingersoll-Rand Compressors are noted for their unfailing service.

There are many thousands of Class "ER" and Class "FR" Compressors in daily use in all parts of the world. A check-up on their performance will convince you that they cause very few lost days.

Ask for **Bulletin No. 3050** and **Instruction Books No. 703-E** and **No. 759-C**. The latter are "ER" and "FR" Compressor service literature.

## Ingersoll-Rand Company 11 Broadway, New York City

*Offices in principal cities the world over.*  
For Canada, refer Canadian Ingersoll-Rand Co., Limited,  
260 St. James Street, Montreal, Quebec



## Ingersoll-Rand Class "ER" Compressors

Straight - line, single - stage, double-acting compressors arranged for belt drive and having the well-known Ingersoll-Rand features—

- Automatic Flood Lubrication.
- Removable Main Crank Shaft Bearings
- Complete and Liberal Water Jacketing
- Enclosed Construction with Removable Covers
- Heavy One-Piece Main Frame
- Ingersoll-Rand Plate Inlet and Discharge Valves

R-630

# Ingersoll-Rand

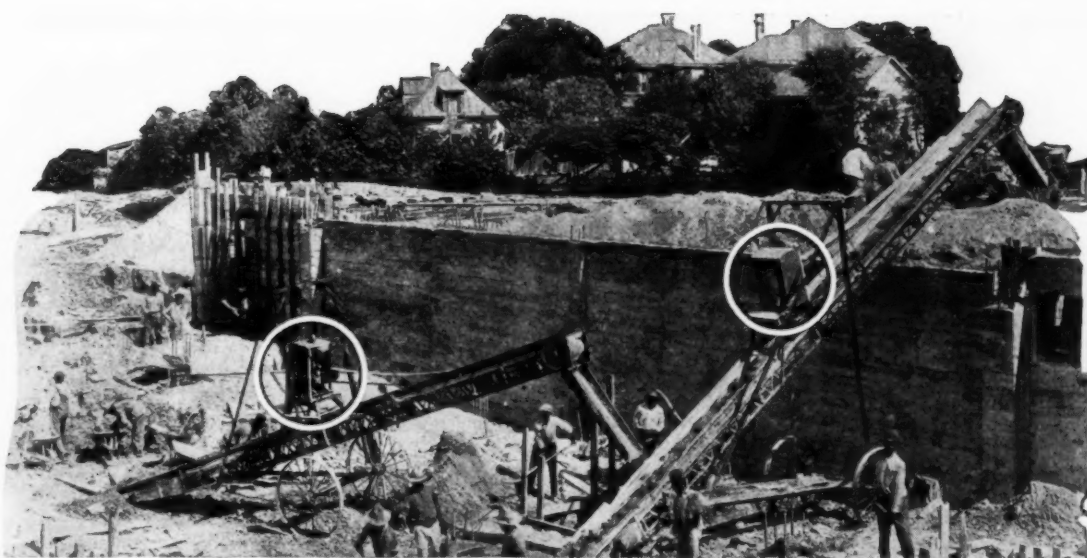
823-C





—it's built in AUSTIN SUPER CRUSHERS . . oversized parts of better materials . . correct mechanical design . . knowledge of service requirements. Crowd them to capacity—with the hardest of stone . . they stand the gaff. We know—we build them. Our customers know—they've used them. You should know about them, too . . before you spend your good money on crushing equipment. Write us about them.

**AUSTIN MANUFACTURING CO.**  
ESTABLISHED 1858  
**400 N. MICHIGAN AVE. CHICAGO**



## From the Ground up—Power!

**W**HEN San Antonio's New Auditorium is completed, it will stand out masterly—a magnificent structure. A building of unquestionable beauty—and as sound as it is serene.

From the ground up, it is built—built by modern construction equipment, amply and dependably *powered*. Starting with the excavating and the pouring of concrete for this building, Le Roi power performed an unfailing service. The kind that safeguards contractors' profits by giving *full measure* power.

After all, it is the continuous, every minute of the day service that weighs

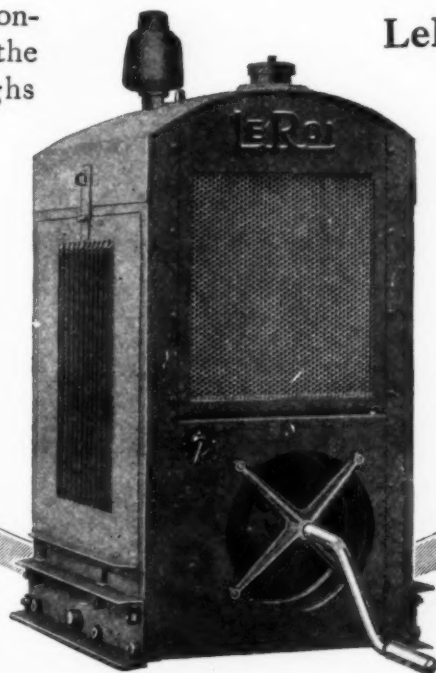
powers' worth. And the basic reason for Le Roi's success.

On most construction work you'll find Le Roi powered equipment. Contractors, big and small alike, depend on Le Roi power for profit.

Look to the Le Roi for dependable power and longer life.

**LeRoi Company**  
Milwaukee, Wis.

**Engine Builders!**  
*only!*



**LEROI ENGINES**  
for dependable power!

## "We Like the Service"

C. A. Moses Construction Co.

Aside from the quality of Sterling wheelbarrows which have always proven satisfactory, we like the service which goes with your product. We find that we can secure your equipment and repairs quickly within the wide range of cities in which we operate.

Yours very truly

C. A. MOSES CONSTRUCTION COMPANY

*J. D. Miller*

The C. A. Moses Construction Co. are national builders, and they, like many other large operators, must have complete and prompt service. The wide distribution of our product and the interchangeability of Sterling parts make it possible to standardize this important equipment to advantage.

Leß shoes represent only one of many improvements incorporated in Sterling construction.

# STERLING WHEELBARROW COMPANY

STERLING ON A WHEELBARROW MEANS MORE THAN STERLING ON SILVER

Milwaukee

MANUFACTURED FOR THE EUROPEAN MARKETS BY:  
STERLING FOUNDRY SPECIALTIES LTD. STERLING WORKS, BEDFORD, ENGLAND

Wisconsin



# CATERPILLAR

REG. U.S. PAT. OFF.

# BONUS

*Time saved  
is money earned*

## "CATERPILLAR" TRACTORS

supply power to build  
and maintain roads.

But their *depend-*  
*ability* earns an  
extra premium.

They ask few favors  
of the weather.

They don't sulk at  
overtime.

Completion of a job  
on schedule time  
frees equipment for  
a new job!

Ask the nearest  
dealer—we'll gladly  
tell you who he is.

### CATERPILLAR TRACTOR CO.

*Executive Offices*

SAN LEANDRO, CALIFORNIA, U. S. A.

*Factories:* San Leandro, Calif.

Stockton, Calif., Peoria, Ill.

*Offices:* New York City

San Francisco

*Successor to*

BEST C. L. Best  
Tractor Co.

The Holt Manu-  
facturing Company **HOLT**

#### Reduced prices on "Caterpillar" Tractors

F. O. B. Peoria, Ill.		
10-Ton - \$5950	5-Ton - \$3650	2-Ton - \$1950
F. O. B. San Leandro, California		
Sixty - \$5500	Thirty - \$3400	





*We think this  
is one of*

## ***THE BEST GUIDES TO SAFETY EVER WRITTEN***

If in doubt about the tensile strength of wire rope you get—don't use it.

If more people would think of this when using Wire Rope there would be fewer mistakes made in using ropes of the wrong tensile strength and consequently fewer accidents.

## **WILLIAMSPORT**

Telfax Tape marked — Factory certified

## **WIRE ROPES**

Completely eliminate all doubt as to the tensile strength of ropes and if you want to be safe rather than sorry—demand the rope that gives you this protection. It costs no more and may save your life.

### **WILLIAMSPORT WIRE ROPE CO.**

*Main Office and Works:*  
Williamsport, Penna.

*General Sales Office:*  
Peoples Gas Bldg., Chicago

---

USE MADESCO BLOCKS—THEY STAND THE GAFF



# See them at the Road Show

# UNIVERSALS

At  
the 1926  
**CHICAGO ROAD SHOW**  
Space N. C. 21

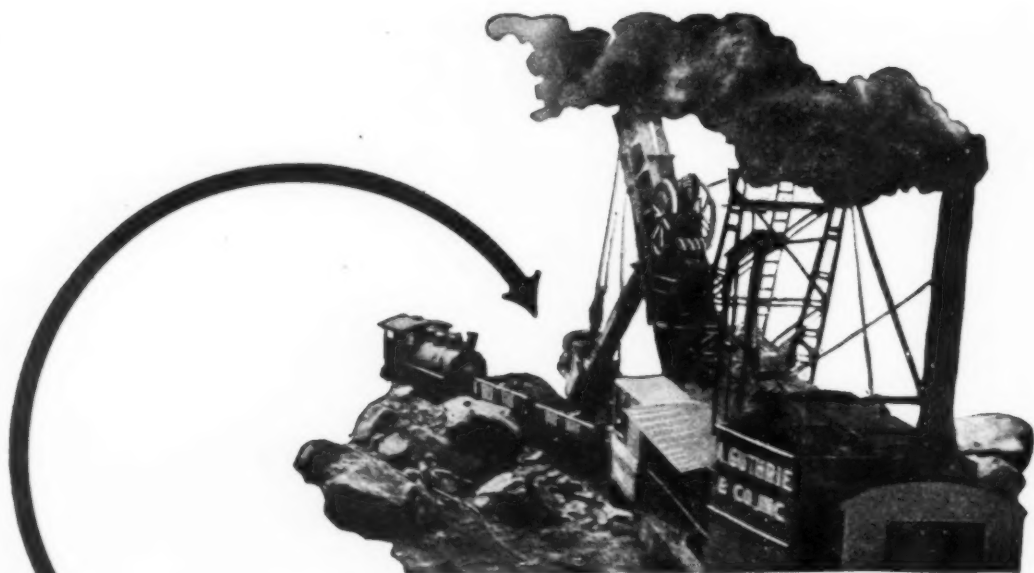
**SEE THE UNIVERSAL CRANE—**  
*that* for 6 years has proved itself to be one of the most adaptable and economical pieces of cost cutting equipment that States, Counties, and Highway Contractors have used.  
*that* can travel to the job at 15 mi. per hour; can handle 50 tons per hour; has rapid 6 R.P.M. full circle swing; uses no outriggers and can move with load suspended; is one man operated, costing about \$15 a day to run; is an all year round, all purpose crane.  
*that* has proven its Reliability due to 100% truck crane design and highest grade construction—1 Repeat Order in every 4 Sales.

Be sure to visit N.C. 21 and see the Universal  
*If you can't get to the Road Show, write now for a copy of the new descriptive Highway Bulletin Number 28-W.*

**The Universal Crane Co.**  
 905 Sweetland Bldg. Cleveland, O.  
*Branches and Representatives in all principal cities*

**UNIVERSAL**





*The Key to the Situation is*  
**[HERE]**



WESTERN Dump Cars are built in all practical sizes, from 1½ to 50 yards, narrow and standard gauge. We will appreciate an opportunity to explain to you the many fine points of engineering that make WESTERNS more valuable to you than any other car.

**Western**  
*That's why!*

**T**IME always counts when a powerful shovel is gouging its way through a job.

There is no time on **any** job to wait for Dump Cars that are slow, inefficient, or—out of order.

WESTERN Dump Cars see the job through in minimum time because of their quick, positive action and rugged strength.

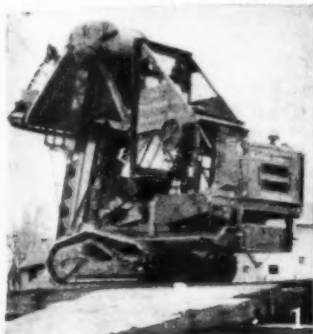
Nearly fifty years of experience in the making of earth-moving equipment is built into WESTERN Dump Cars. They are time-tested and service-tested by practical men on thousands of tough jobs.

That's why when you buy WESTERN Dump Cars you buy definite results. You can make more money with WESTERNS!

**Western Wheeled Scraper Company**

*Earth and Stone Handling Equipment Since 1877*

**AURORA, ILLINOIS**



1—2:00 p. m. The engine is running and the Barber-Greene is ready to unload itself from the flat car.

2—2:05 p. m. Half way down the incline. The 90 degree turn on the flat car was negotiated under its own power.



Tear this out and send for the paper "The Use of Small Trenching Machines," delivered by A. G. Ford of the Western United Gas & Electric Light Co., before the 21st convention of the Illinois Gas Assn.

Name.....  
Address.....  
City.....  
State.....

3—2:10 p. m. Off the car. A brief stop for gas. The Barber-Greene is fast on its feet.



4—A Barber-Greene straddling a ditch while digging. The full length crawlers make working in rough ground a common, easy job.

5—A Barber-Greene crawling off a flat car on to a specially built carriage.

## Here's Why the Barber-Greene Is Fast On Its Feet

The husky Barber-Greene Ditcher is fast on its feet. Notice the still movie above, showing a Barber-Greene unloading itself from a flat car.

Only ten minutes elapsed from the cranking of the engine to the stop for gas.

That same handiness is evident in actual digging. The reasons are the same. Full length crawlers enable the Barber-Greene to turn in its own length. In addition, they provide the steady, line-holding traction that enables the ditcher to work under conditions similar to those shown in picture number four.

Coupled with the vertical digging boom these full length crawlers help the Barber-Greene to work in and out of tight corners—to dodge trees,

posts, houses and similar obstructions with but little lost time and little lost ditch.

That sort of speed permits the Barber-Greene to dig service laterals, to cut through rough ground, to trench in crowded quarters and similar places where only hand labor has ever worked before.

Coupled with this handiness is the digging speed that averages 5000 to 6000 lineal feet of pipe line trench, day after day.

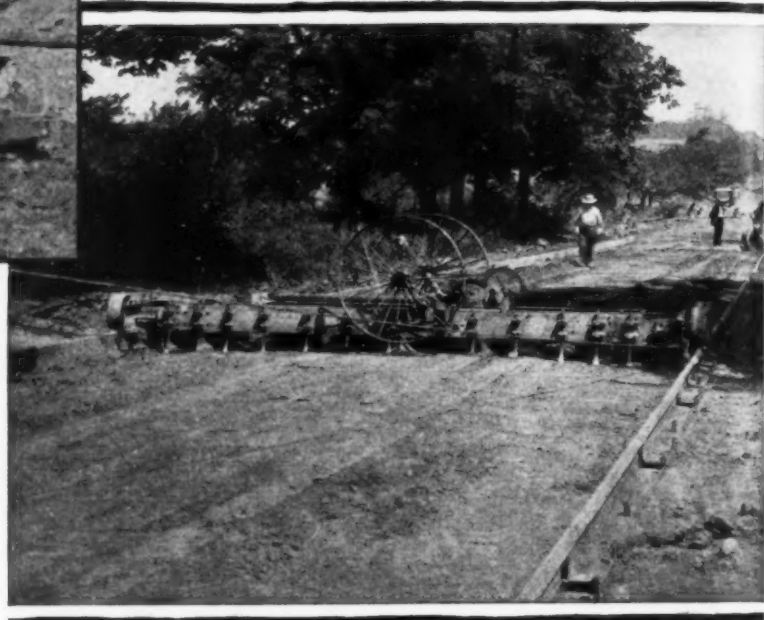
That's what we mean when we say that Barber-Greene is fast on its feet. There's a more complete story of Barber-Greene digging speed and cost cutting. The coupon will bring you A. G. Ford's paper, "The Use of the Small Trenching Machine" and our latest ditching booklet showing actual jobs.

BARBER-GREENE COMPANY—Representatives in 50 cities—530 W. Park Ave., Aurora, Illinois

**BARBER GREENE**  
Portable Belt Conveyors Self Feeding Bucket Loaders  
Coal Loaders . . . Automatic Ditch Diggers . . . Coal Feeders



The  
Graderooter



The Subgrader

**T**HESE are tools that save money on fine grading. The Graderooter does the work of a rooter plow, and does it faster and better. Roots 48 inches wide. Light enough to use a 2-ton tractor; strong enough for a 10-ton tractor.

The Steel Subgrader planes the subgrade to exact depth and cross section, and insures a *true* grade without fuss or bother. Used on truck haul or narrow gauge jobs. A few hour's use of the machine completes the fine grade for the day's run. It has many exclusive features, such as adjustment of width, spring balance lift, scarifying teeth, etc.

*For full details send for Bulletin 46-S*

**THE LAKEWOOD ENGINEERING CO.**  
CLEVELAND, OHIO

Export office—30 Church St., New York City





## Good News for Shovel Users

FOR some time past, in fact ever since Thew  $\frac{1}{2}$  and  $\frac{3}{4}$ -yard shovels have been equipped with Center Drive Trucks, there has been a clamor from Thew one-yard shovel owners for Center Drives too.

Of course, it took time to make the change, but now it is done. Thew A1 one-yard shovels can now climb, steer and travel like Thew Type O shovels.

"And that's going some," if you will take the word of every man who has bought a Thew Center Drive this year.

If you own a Thew A1, you don't have to buy a new shovel to get a Center Drive Truck. Yours can be equipped very easily. Ask us about it.

The above shovel belongs to I. F. Cavalluzzo, of New York. He ordered Thew Center Drives as soon as he got the good word.

If you are in the market for a new one-yard shovel, see a Center Drive perform before you buy. It will pay you.

THE THEW SHOVEL COMPANY, LORAIN, OHIO

# Thew Shovels

## Dig Faster—Last Longer



**D**URING the past winter, MACK motor truck crane units definitely established their indispensability in snow removal work, as an important adjunct to the street cleaning departments of the larger cities throughout the country. In many cases one crane and two laborers easily performed tasks that formerly required a gang of 45 laborers.

This is but another instance of the hundreds of uses to which this unit may be put under any and all conditions, assuring year-round revenue producing performance. Due to its rugged construction, the MACK chassis has proven an ideal transport base for this type of equipment.

MACK TRUCKS, INC.  
INTERNATIONAL MOTOR COMPANY  
25 Broadway, New York City

Ninety-five direct MACK factory branches operate under the titles of: "MACK-INTERNATIONAL MOTOR TRUCK CORPORATION" and "MACK MOTOR TRUCK COMPANY."

**PERFORMANCE COUNTS**

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